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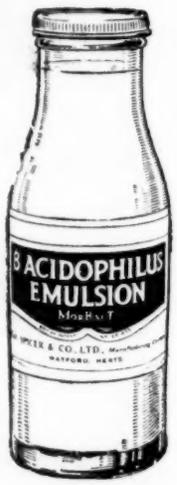

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Observations

CONCERNING THE RELATIONSHIP BETWEEN CHOLESTEROL METABOLISM AND VASCULAR DISEASE*

BY

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It has long been known that the intima of the vessels is particularly disposed to fatty change. Virchow took a particular interest in this subject, and in his treatise on scientific medicine he dealt with it at length. He differentiated the simple fatty changes in the cells of the intima, and the roughness which results therefrom, from the atheromatous foci which develop in the depth of the same intima.

We believe to-day, however, that the two processes, which even in Virchow's time had been classed together as atherosis of the intima (*Zellularpathologie*, 4 Auflage, 1871, p. 462), are, in fact, one and the same.

In view of the evidence brought forward by Adami, and concurrently by myself (*Proceedings of the Royal Society*, B, lxxviii), it would appear that the doubly refractive fat droplets in the intima should be regarded as cholesterol esters and cholesterol oleates—it is thus appropriate to speak of a fatty degeneration of the vessels as due to cholesterol esters. This view received further support from Panzer's chemical investigations, which were published in the same year as our own papers. The views of Windaus, who carried out investigations somewhat later (dealing particularly with atherosclerosis) also tended to support our opinions. However, the conception of a primary fatty change as the first departure from the normal in atheromatous disease of the vessels has not been universally accepted. I would like to point out here that we have never stated, as so many persons have alleged, that the fatty change in the intima is a *pure* cholesteatosis—it would only be possible to think this if one had hurriedly read the reports of the International Congress in Budapest (*Ziegl. Beitr.*, 1910, xlvii, 43) or Kawamura's monograph (p. 110). On the other hand, we may state that among the visible fatty deposits the cholesterol esters appear to predominate.

ATHEROMA AS A "CHOLESTEROL STEATOSIS"

From the histological standpoint it is only possible to speak of a fatty change when fat is *visible*. The term "cholesterol steatosis" must necessarily remain a morphological conception carrying no chemical or quantitative implication. The visible fat in the intima must, however, in view of its reactions, be regarded as a cholesterol ester. It is, of course, understandable that chemical analysis, which also accounts for the *invisible* fat, will give different values, but we must remember that this is able to give us 55 to 60 per cent. cholesterol esters and 23 to 26 per cent. of free cholesterol in cases of well-marked atherosclerosis (Schoenheimer). Thus, even from a chemical standpoint, it is reasonable to speak of a cholesterol steatosis, since the use of this term emphasizes the difference from the fatty compounds of glycerol, which only appear in small quantity in the total fat. As far as is known, neutral fats play no part in the fatty changes in the intima.

In addition to cholesterol esters and cholesterol, however, both phosphatides and cerebrosides have been found, and Kutschera-Aichbergen has attributed a special role to the former. It may be seen from Schoenheimer's curves that this is really not the case. Furthermore, one may point out that the cerebrosides have likewise no special function, since these, together with cholesterol esters and phosphatides, may all be found in the normal aorta. In the so-called atheromatous process there occurs, to begin with, an increase of all three kinds of lipoids; this is clearly demonstrated by the curves of Schoenheimer and the figures given by Kimmelstiel. It may be observed, nevertheless, that the increase is most marked in the cholesterol esters (including the free cholesterol). In severe cases of atheroma the cholesterol (free and combined) may increase 112.8 times, the phosphatides 39.5 times, and the cerebrosides 38.5 times. One is therefore justified in describing the pathological state of atheromatosis as a cholesterol steatosis, especially since the phosphatides and cerebrosides in the fat mixture are not readily demonstrated by any physical or staining methods. A chemical pathologist will always keep the presence of these substances in mind, but their part in the disease process is relatively unimportant.

MECHANISM OF LIPOID DEPOSITION

If we are to-day better informed as to the most important chemical substances occurring in the fatty degenerations of atheroma, we yet remain in some ignorance as regards the cause and nature of this condition. In attempting to throw light on these matters I shall find it necessary to discuss the origin of the lipoids. In this matter the methods of histology will prove helpful, for they show that the deposition of lipoids occurs first of all in the intima. The systematic researches of Nora Nordmeyer have shown that the media is only involved in the deposition of lipoids in those parts where the deeper elastic layers of the intima—those lying next to the media—are particularly loosely knit. This is found to be the case in the aorta, the carotids, and the coronary arteries. In other parts the deposits of fat are confined to the intima. What is the explanation of this lipoid infiltration of the intima? The explanation must surely be sought in the blood.

We have known since Virchow's time that the intima and the inner two-thirds of the media of the large vessels derive their nourishment from the blood stream. A continuous stream of lymph evidently passes from the circulating blood into the vessel walls. The experiments of Lange support this conception, which suggests that the lipoids are brought into the vessel walls from within the lumen. In these circumstances the deposits will occur first in those places where the physical conditions are most favourable. If we observe the places in which they occur in man, we shall notice that they are usually in the so-called elastic limiting layers; in the aorta, for example, in the intermediate elastic layer, in the coronaries in the elastica interna (internal elastic lamina)—in every case they occur at the border of intima and media. Now this border tissue is formed of a close meshwork of elastic fibres or of a more homogeneous layer. Unfortunately we have no information concerning the intimate structure of this elastic border tissue, but we may reasonably assume that some cementing substance is present to hold the elastic fibres together. Similarly it may be shown that the elastica interna is also a mixture of tissues and not homogeneous. It is formed of a series of layers which exhibit differences in their staining reactions. I myself am of the opinion that the cementing substance which lies between the elastic fibres, and by which the elastic tissue is thickened into a definite elastic layer, or lamella, is in fact the site of the lipoid deposits. Although it might appear at first sight that the *whole* of the border tissue had stained with Sudan red, closer examination reveals that the fatty changes of the intima always begin in the depths of this layer, close to the border against the media. It is reasonable that this

* Contribution to a discussion in the Section of Pathology at the Centenary Meeting of the British Medical Association, London, 1932.

variety of fatty change should have been termed "interstitial" in contrast with the cellular variety.

If lipoid substances are derived from the blood and reach the intima by way of the lymph, to be precipitated in the fine meshwork of the intermediate elastic layer, then it would be reasonable to expect that the route by which this absorption occurs would become progressively more obvious as the deposits increased; in other words, the lipoids would approach nearer and nearer to the lining of the vessel. This is in fact the case, and is readily understood, since the fine network of the elastic layers will be increasingly congested by the accumulating lipoids, so that the rate of absorption gradually decreases. The greater the accumulation of lipoids in the interstitial tissue the more obvious does the presence of drop-like deposits in the cells of the intima become. The coincidence of these two phenomena is so frequent that it has suggested to some people that the whole process is cellular in origin. It is thus easy to understand why the condition was at one time looked upon as a failure of compensation, in which the cells were no longer able to resist a fatty change; we know to-day that the process is merely an infiltration. Furthermore, it would be quite reasonable to suggest that the cellular fatty changes only occur when a certain degree of infiltration of the interstitial substance has taken place.

Many observations, including those of an experimental nature, tend to support this view. All tissues which have undergone fatty change—both cellular and interstitial—exhibit a more or less marked turgescence, which is evidence of imbibition. In the interstitial tissue this may be detected from the increased separation of the elastic fibres. In a cross-section the elastic layer then appears to be in a state of granular degeneration. If at the same time the media is also diseased, the cementing substance between the collagen and elastic fibres also exhibits a lipoid infiltration and fatty change. In association with this there may at times be seen a fatty degeneration of the muscle fibres. As has already been stated, these lipoid infiltrations of the media, which only occur in special sections of the vascular system, play no part comparable to the fatty changes of the intima.

The Influence of Age

If, then, we are able to look upon atheroma as an imbibition process from the blood plasma occurring in the intima—a conception for which histological evidence is forthcoming—we shall find it necessary to inquire why such imbibition produces such varying results at different periods of life. There is no doubt that this imbibition begins in early childhood, but it does not lead to pronounced atherosclerosis—that is, endaortitis deformans—until a considerable age has been reached. Special circumstances must therefore be present in each period of life to bring about that form of the disease which is peculiar to it. We are able to distinguish to-day between the types which occur in babyhood, at puberty, and in adult life. It has been shown that in babies the large mitral valve and the root of the aorta are most often affected, while in the second and third decades the thoracic, and in later life the abdominal, aorta are most often involved. We might say, in fact, that the atheromatous changes spread from the aortic root into the abdominal aorta, and later into the vessels of the limbs. Similar spreading lesions may be observed in individual vessels—as, for example, in the coronary arteries of the heart. In the latter the main branches, generally on the left side, are first affected, while the medium-sized and smaller branches, particularly the points of division, become diseased later. There is no doubt whatever that this method of spread is a phenomenon associated with growth and of the increasingly important functions of the peripheral vessels with the advance of years. It is not only a question of a spread of atheroma to the periphery occurring in stages corresponding to the various stages of life. We have, in fact, to deal with alterations in the disease picture, both microscopical and macroscopic. Whereas in babyhood and at puberty we find a simple lipoid imbibition in a slightly thickened intima, which coincides with the growing period of the vessels in age, when the vessels are undergoing regressive changes we find the nodular and irregular, or "geographical," thickenings of the intima which constitute a process recognized by the name of endaortitis or endarteritis deformans.

These lipoid deposits are generally much more marked than those which occur in youth, but the thickening is due not only to these lipoid accumulations, but also to associated swelling and proliferation in the adjacent intima. These are to some extent caused by the invasion of protein substances also derived from the blood stream (hyaline swelling or hyalinosis). In association with this infiltration a true hypertrophy and new formation of collagen and elastic fibres occurs. These lesions are of a porcelain-white colour on the surface, but when incised will be seen to exhibit more or less marked lipoid infiltration in the deeper structures. There is experimental evidence to show that every lipoid infiltration of the intima, when it has been present a sufficient time, causes a reactive hypertrophy of the adjacent intimal tissues.

Pathology of Necrotic Changes

Why do the changes described above occur in that period of life which constitutes decline? We must assume that as age advances the overstretching of the vessels and the associated changes in the intima favour swelling of fibrous tissues and the proliferation of cells. In any case the general molecular disintegration which the intima suffers during life conduces to severe disease of this structure, and this may be contrasted with the lipoid infiltration of the intima of the aorta which occurs in younger people. The whole process of imbibition is one in which lipoid substances become deposited. In young persons it remains at a certain level, or may even decrease, but in older persons it advances irresistibly because of the physico-chemical changes which have occurred in the walls of the vessels; yet old age alone does not bring about any atherosclerosis of the type of an endaortitis deformans, though an increasing absorption of lipoids is a factor in its production.

The chemical investigations of Schoenheimer, who examined the lipoid content of the intima, support this view. He was able to show that the percentage of free cholesterol in the intimal fat remained practically the same although the arteriosclerotic process was getting worse. The percentage content of the other lipoids, however, particularly of the cholesterol esters, rapidly increased. This may be explained by the increase in the absorption of cholesterol esters from the blood.

The larger the atheromatous patches with their contained lipoids become, the more easily does necrosis of tissue occur in them. One might say, in fact, that the tissue is choked with lipoids. As soon as necrosis begins, though, visible changes occur in the lipoid also. The cholesterol in combination is liberated, and forms the well-known acicular crystals shining brightly in the debris of the fatty substances. At the same time the usual sclerosis of the atheromatous foci from a deposition of calcium salts begins—the process to which the term "atherosclerosis" has been applied. We do not understand the exact nature of this calcification. Histological preparations show an increasing diffuse or granular calcium staining at the edges of the necrotic areas. At one time I shared the opinions of Klotz, believing, in view of

the investigations of Kawamura, that calcium soaps were formed, presumably as combinations with the fatty acids which had been liberated by the break-up of the cholesterol esters. The very careful experiments of Schoenheimer failed, however, to supply positive evidence in support of this hypothesis, so that it must be considered possible that the calcifications are independent of the lipoid deposits and perhaps merely a consequence of necrosis. This type of calcification is termed " secondary calcification," or more often " calcification of the intima."

We know that in addition to the lipoid substances and the protein (hyaline), which has been mentioned, certain other constituents of the blood plasma may penetrate the vessel walls. First among these must be mentioned the slimy or mucinous substance which is seen in considerable quantity, even in normal circumstances, in the walls. It is difficult to decide whether we have to deal with an increase of the amount normally present or with a swelling of that which is already there. It is at least certain that this mucinous change is most marked in the media. Evidently the fluid carrying the mucin, or that which causes the mucinous interstitial substance already present to swell up, is able to traverse the elastic lamina between intima and media more easily than can the lipoids. It is only in those places where the intima has already become thickened from other causes that this substance is precipitated. The mucinous changes of the media are thus in every way comparable with the atheromatous changes of the intima. Furthermore, the distribution of these changes throughout the vascular system is identical.

CALCIFICATION OF THE MEDIA

We must now discuss another matter to complete the picture of atheroma. This is the calcification of the media, the so-called primary calcification of the vessel walls. It is not preceded by any lipoid change, such as happens in the intima, but is a peculiar calcifying process in the muscle fibres, and the collagen fibres around them, which finally leads to necrosis. The elastic fibres usually continue to stain quite well, but are seen to be stretched out, so that calcification of the media evidently occurs while the vessel is under tension. The foci of calcification are usually to be found immediately adjacent to the internal elastic lamina or the limiting elastic tissue. This is at times undergoing a fatty change on the side nearer to the lumen of the vessel, while towards the media it is often partly calcified.

It is thus evident that the calcification which occurs so easily in the media immediately adjacent to the elastic layer is due to the peculiar physico-chemical properties of the former tissue. There is no doubt that the advance of age is able here, as elsewhere, to favour this change. It is rather remarkable, however, that these processes do not tend to occur in the aorta, or the vessels of the brain and heart, but rather in the limbs, especially the tibial vessels. The special neuro-muscular conditions here must undoubtedly be a factor in the development of calcification. It is not yet possible to decide whether substances which are formed in the limbs as a result of activity may be able to penetrate the media of the limb vessels with particular ease and exercise a local influence therein. Although such substances may exist we know nothing of their chemical constitution. It is not unlikely that, with the deposit of the cholesterol, active ergosterin also comes into the walls of the vessel and consequently irradiations of the body encourage the calcification of the media (Windaus). At any rate, fatty degeneration in the intima and calcification of the media have a much closer connexion than has been thought during the last few decades. There is no ground for differentiating between usual arteriosclerosis and Mönckeberg's vessel disease.

GENERAL CAUSATIVE FACTORS

X-ray photographs of the arterial system in a dead body, taken by Rühl, also support this contention. From such evidence one may be certain of the close connexion between the various forms of degeneration of the vessel walls: it is likely that this would be the case since a common aetiological factor (a more or less marked absorption from the blood lymph) is present in all. Rühl's figures show that the vessels in various parts of the body exhibit considerable variations in the extent of the morbid changes which have occurred in them. In one case a vessel will have suffered marked fatty changes of the intima, while in another the same vessel will exhibit considerable calcification of the media.

As regards the aetiological factors in the development of atheroma the changes described as occurring in the vessel walls cannot take place unless the substances which produce them are present in sufficient quantity in the blood plasma. We know quite well that the amount of cholesterol in the blood plasma varies within wide limits, and we also know that it is essential to differentiate between the free and the combined substance. One might therefore be inclined to ask whether any relation can be established between the atheromatous changes in the intima and the cholesterol content of the blood and lymph as a result of the examination of the dead body. Let us here consider a few cases in point. It has been customary to suggest that the atheroma of babies is due to the high cholesterol content of their food—this problem is still under investigation. With regard to the atheromatous changes of puberty, the part, if any, which is played by the ductless glands is unknown, though the increase of lipoids in the suprarenals and in the interstitial cells of the testis occurring at puberty would suggest that some such mechanism is present. One must be satisfied with the inference. In adults we have to blame either the primary disease or the diet for the increase of atheromatous changes. All diseases which are associated with a considerable increase of the blood cholesterol, such as diabetes, cardiac disease, and hypertonia, lead to an increase in the deposit of lipoid. The full picture of endaortitis deformans will not, however, develop until the persons concerned have reached their period of decline. We do not know with certainty whence the blood cholesterol in these diseases is derived. It appears most likely that it originates in the food. This hypothesis is also supported by feeding experiments, with cholesterol in oil, which have caused a more or less marked atheromatous change in the heart valves and the intima of the great vessels, these being particularly well developed in rabbits. But we must not forget that the excretion of cholesterol through the liver and the bile occurs differently in the herbivora and the carnivora. For this reason one should not attempt to apply the conclusions of experiments with rabbits too freely, and their interpretation in human beings must be accepted with reserve. It is conceivable that the endogenous formation of cholesterol which has been shown to occur in the carnivores may become disturbed. In this way an over-production might be possible, so that a condition which could be described as a cholesterol gout (Schoenheimer) might arise. If this were the case it would be reasonable to look upon atheroma as a metabolic disease and not as a disorder of nutrition.

Mechanical Factors

Purely chemical factors, however, are not alone the cause of atheromatous disease. The facility with which the blood serum penetrates the vessel walls is a most important consideration, and this depends, first, on the blood pressure, and, secondly, on the structure of the vessels. With regard to the former, the causal relation

between blood pressure and atheroma is supported by convincing evidence. The most striking is perhaps the presence of atheroma in the ascending aorta in cases of aortic stenosis. Almost equally convincing is the development of lesions in the pulmonary artery in the presence of left-sided valvular disease.

The localization of the lesions is not determined by the blood pressure alone, but is also influenced by the effects of the blood stream in particular places. All so-called weak spots, such as the scarred remnants of the ductus arteriosus, and all places in which the current of the blood most easily causes a loosening of the structure of the intima, are liable to be affected at an earlier date and more severely than are other parts. We must include in these the points at which branch vessels are given off, and those, such as the surface of the mitral valves or of the sinus of Valsalva, on which the blood impinges with great force, together with those parts which are most firmly fixed and therefore exposed to a correspondingly severe shock. The mechanical factor is thus seen to be of great importance in determining the localization of the lipoid infiltration. It is not yet possible to say to what extent, if any, variations in the tension of the vessels concerned —controlled by the nervous system—affect the morbid changes.

In reviewing the whole picture of the development of atheroma one is forced to the conclusion that the precipitation of lipoids is the most important factor. As a corollary to this one has to admit that all inquiries into the nature of this condition must, of necessity, be intimately concerned with the problems of cholesterol metabolism.

THE BIOCHEMICAL SYNDROME OF URAEMIA

BY

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In recent years, following certain Continental workers (Volhard,[1] Widal and Javal,[2] Ascoli,[3] Strauss,[4] and others), most clinicians have modified their views on the nature of certain so-called "uraemic" manifestations in man. It must, however, be admitted that our present conception of the uraemic syndrome is a very confused and unsatisfactory one, as is evidenced by the continued use of such terms as "acute uraemia," "chronic uraemia," "true uraemia," "false uraemia," and so on. The object of this paper is to distinguish the true biochemical syndrome of uraemia from certain allied conditions.

The complete removal of both kidneys from the young and healthy animal constitutes the only satisfactory method of inducing pure and uncomplicated renal failure. It has long been known, since the studies of Prévost and Dumas,[5] that such a procedure is followed by the progressive accumulation in the blood of those metabolic end-products which would normally be excreted in the urine. Such accumulation is followed by a profound upset in the blood and tissue chemistry, which in turn produces a series of clinical phenomena eventually terminating in death. Strictly speaking it is to this series of phenomena, and to it alone, that the term "uraemia" should be applied. When we come to consider the question of uraemia in man, however, certain important difficulties arise which cannot on any account be overlooked. Many diseases are accompanied by a functional disturbance of the kidney, which tends, if severe, to end in a condition of uraemia apparently similar to that following total nephrectomy in animals. These diseases (for example, chronic glomerulo-nephritis, malignant renal sclerosis, gross bilateral disease of the kidney, and acute nephritis) are, however, invariably accompanied by certain important *extrarenal* factors, which produce a complex clinical picture of their own. The most important of these extrarenal factors are: vascular hypertension; diffuse arteriolar and arterial disease, with resulting structural changes in organs other than the kidney; myocardial degeneration; and certain obscure vasomotor phenomena not yet fully understood. For this reason it is practically impossible to encounter in man a case of pure uraemia free from all disturbing factors, and comparable to that following total nephrectomy in animals. Such a case would be of extreme interest, as it might be expected to aid in deciding what features of the familiar clinical picture are truly uraemic and what are the associated alterations in blood chemistry.

A case will here be described of a young and healthy man who lived for ten days after total removal of all his kidney substance, and who, during this time, was studied from the clinical and biochemical aspects. He thus resembled in all respects the laboratory animal in whom uncomplicated uraemia is produced by total nephrectomy. A study of the literature has failed to reveal any parallel case, though patients with anuria who have lived for long periods are not uncommon. Thus Myers,[6] in reporting a case of apparently complete urinary obstruction of thirty days' duration, made an extensive survey of the literature, and could only collect ninteen cases of complete anuria with a duration of twenty to twenty-nine days. A few cases, however, are reported of anuria of even longer duration (up to sixty days, Baily[7]). Most of the cases are due to renal calculus or "toxic nephritis," occasionally to ureteric obstruction or "reflex anuria." All the cases are reported as curiosities from the clinical point of view, and in none was any real attempt made at biochemical investigation. Such cases are of course complicated by the condition causing the anuria. Many workers have attempted to investigate prolonged anuria due to mercurial nephrosis, but in such cases the profound general effect of the poison makes accurate study of the renal condition impossible.

A CASE OF PURE URAEMIA

A healthy young man, aged 22½, was kicked in the left loin when playing football. Thereafter he suffered severe pain, and some days later was brought to hospital with heavy renal haemorrhage and severe colicky pains from the passage of blood clot. Conservative methods were tried for some days, but failed to arrest the haemorrhage. The kidney was explored and found to be hopelessly ruptured, the rupture involving the hilum and necessitating removal. The patient lived for ten days after operation without secreting a drop of urine, and then died of uraemia. Cystoscopy, confirmed by post-mortem examination, showed that he was the subject of congenital absence of the right kidney and ureter. The bladder was triangular in shape, as if the left side only had developed. There was no sign of any remnant of kidney or ureter on the right side. The temperature rose to 101° F. after the operation, but gradually settled down, and for the last four days remained steadily subnormal (97° F.). The pulse rate rose to 140 after operation, but settled down and remained steadily between 90 and 110 until death. The blood pressure did not rise beyond the normal limits. It was 116/62 on admission and 110/40 on the day before death. There was thus no hypertension, but a marked fall in the diastolic pressure.

There was no apparent alteration in the size of the heart, and the rhythm was normal throughout.

Symptoms

For four days following the operation the patient remained in perfect health and was quite happy. He received nothing by mouth except water and calcium chloride. Forty ounces of 5 per cent. glucose in saline were given by rectum each day. On the fifth day the first definitely uraemic symptoms

appeared, when he became drowsy and disinclined for conversation, and developed a dull frontal headache. The non-protein nitrogen of the blood rose rapidly to over 200 mg. per cent. in five days. On the fifth day a slight fibrillary twitching of the arm muscles appeared. Next day he became much worse (non-protein nitrogen 215 mg. per cent.), the condition bordering on coma, but when aroused he could speak intelligently and only complained of headache. The skin was dry and harsh. A peculiar generalized fibrillary twitching of all the somatic muscles now developed. Apart from the coma and perpetual vomiting this muscular twitching was the most outstanding clinical feature. It was generalized and persistent and very striking, but not sufficiently strong or co-ordinated to cause any appreciable movement of joints. There was never anything in the nature of tetany, muscular spasm, or clonic or tonic seizures. From now onwards he gradually settled more and more deeply into quiet coma, but with the muscular twitchings more accentuated (Ca : P ratio = 0.59; non-protein nitrogen 218 mg. per cent.; CO_2 combining power of the plasma 31 c.cm. per cent.). During the last five days he vomited large quantities of acid bile-stained fluid containing free HCl, chlorides, and urea. He was never excited, but remained quiet until his death. At no time was there the slightest trace of oedema anywhere. There was no evidence of ascites or hydrothorax. In spite of the marked acidosis there was no air-hunger or hyperpnoea. There was no stomatitis, diarrhoea, or excessive thirst.

Biochemical Features

The accompanying tables show the most important features of the blood chemistry during the last five days of life.

TABLE I.—*Non-protein Nitrogen, Chloride, Cholesterol, and Haemoglobin*

	Average Normal	Sixth Day	Eighth Day	Ninth Day	Tenth Day
Total non-protein nitrogen ...	20–40	215	218	240	268
Urea	20–40	250	240	224	272
Uric acid	2–3	—	11.0	12.8	13.3
Ammonia (as NH_3)	0.1	—	—	—	130
Chloride (as NaCl)	450–500	412	379	363	351
Cholesterol (free + ester) ...	160–200	130	152	158	188
Haemoglobin (grams per cent.)	13–14	8.7	8.5	8.0	7.0

Figures = mg. per 100 c.cm. of whole blood.

TABLE II

	Average Normal	Case		
		Eighth Day	Ninth Day	Tenth Day
Calcium	9–11	—	7.33	7.90
Phosphorus	2–4	10.0	12.8	14.8
Ca : P ratio	4–5	—	0.59	0.53
Plasma protein:				
1. Total	7.5	—	6.31	6.85
2. Albumin	5.5	—	3.34	2.97
3. Globulin	2.0	—	2.97	3.88
Albumin : globulin ratio ...	2.5	—	1.10	0.77

Inorganic constituents (mg. per cent.). Plasma proteins (grams per cent.).

TABLE III.—*Alkali Reserve of the Blood as Shown by the CO_2 Combining Power of the Plasma*

Average normal	50–80
Mild acidosis	40
A patient dying of chronic uraemia	35
Healthy individual after ingestion of 52 grams NH_4Cl in three days	33
Case—eighth day...	31
Case—ninth day	33
Case—tenth day	39

Figures = number of c.cm. of CO_2 bound by 100 c.cm. of plasma.

Total non-protein nitrogen was determined by precipitation of the blood proteins with tungstic acid, digestion of the protein-free filtrate, and subsequent Nesslerization. The concentration rose steadily to 268 mg. per cent. on the day of death. As no nitrogenous bodies at all were ingested, this nitrogen is presumably the result of endogenous metabolism alone. It is strange that the rise during the terminal days should be so gradual (for example, 25 mg. per cent. in three days) when nitrogenous metabolism can have been little, if at all, reduced.

Urea was determined by urease hydrolysis and subsequent Nesslerization. During the final period the concentration, after rising to 250 mg. per cent., remained almost stationary. This is peculiar for the reason mentioned above. Possibly the ammonium carbonate resulting from amino-acid hydrolysis was not converted into urea at all. This point is referred to later. Another item of interest is that the urea accounted for only about half the total non-protein nitrogen of the blood. It is usually asserted that in cases of severe nitrogen retention the blood urea is increased out of all proportion to the other nitrogenous bodies.

Uric acid, determined by the colorimetric method of Folin,[8] rose to 13.3 mg. per cent.

Ammonia.—Normal blood contains practically no ammonia (less than 0.1 mg. per cent.). Nash and Benedict[9] found that in nephrectomized dogs the blood ammonia fell, and adduced this as evidence that the blood ammonia is synthesized by the kidney. Russell,[10] in 1923, studied with great care the blood ammonia of patients with advanced nitrogen retention and found it to be within normal limits, thus supporting the contentions of Nash and Benedict. In the present case the blood ammonia was determined on one occasion only, and was found to be 130 mg. per cent. Needless to say, all the reagents were ammonia-free, control tests on them giving no colour with Nessler's reagent, while control estimations on normal blood gave the usual results. Though some little time was lost in transferring the blood to the laboratory, control bloods examined after the same period were ammonia-free. According to Parnas and Heller[11] the ammonia which forms so rapidly in shed blood is not derived from hydrolysis of urea, but from other unknown nitrogenous substances. Whether or not this is true, it is possible that in the present case the ammonia precursor and the rate of hydrolysis were both greatly increased, and that ammonia was not actually present in excess in the circulating blood. But the fact that the increase in the ammonia was accompanied by a failure of the blood urea to increase is suggestive, as relatively little urea was lost in the vomit. Rabinowitch[12] has described a unique case of acute liver necrosis in which the blood contained no urea whatever, but a marked increase of the amino-acid nitrogen. No determination of the blood ammonia was done.

Calcium and Phosphate.—Calcium was determined by the method of Kramer and Tisdall,[13] and inorganic phosphate by Briggs's[11] colorimetric method. Two days before death, when the muscular twitching was marked, the serum calcium was 7.33 mg. per cent. and the Ca : P ratio, which is probably of more significance than the absolute level of either substance, was 0.59 instead of the normal value of about 4. The following day the muscular twitchings were even worse, and though the Ca had risen to 7.90 mg. per cent. the P had risen out of proportion, so that the Ca : P ratio fell to 0.53. The fibrillary twitchings at this stage were very marked, involving all the somatic muscles. These findings are of interest in view of the suggestion by de Wesselow,[15] by Schmitz, Rohdenburg, and Myers,[16] and by Bennett[17] that such twitchings, which are so common in uraemia, are *peripheral* in origin and due to an upset in the blood Ca and P. The inorganic phosphorus rose to the high level of 14.8 mg. per cent. This by no means exceeds the level found in some cases of chronic uraemia. De Wesselow,[15] for instance, has recorded a case where the blood phosphorus rose to over 20 mg. per cent. before death from uraemia. The phosphate retention in the present case was accompanied by a high degree of acidosis.

Acidosis.—The alkali reserve of the blood, determined by the method of Van Slyke, showed an extreme degree of acidosis. The volume of CO_2 at N.T.P. bound by 100 c.cm. of plasma, on the last three days of life, is given in

Table III, where it is compared with that in a normal individual, in a patient with diabetic acidosis, in a patient dying of "chronic uraemia," and with that resulting from the severest degree of acidosis which could be experimentally produced in a normal individual by ingestion of large quantities of ammonium chloride. It is of interest that the severe acidosis of the present case was not accompanied by the slightest hyperpnoea or dyspnoea. It is usually held nowadays that the severe dyspnoea so common in uraemia is the result of acidosis following retention of phosphate by the kidney.

Chloride.—The whole-blood chloride fell definitely, but not excessively, below normal. This fall, which occurred in spite of salines and calcium chloride, accompanied the excessive acidosis described. In most cases of urinary suppression, however, the chloride rises—often to excessive heights if the patient continues to ingest salt. Fishberg[18] reports two cases in which it rose to 1,100 and 930 mg. per cent. respectively. In cases of severe vomiting, on the other hand, the loss of chlorine in the vomit is followed by a twofold change in the blood chemistry. There is a marked fall in the blood chloride but a great *increase* in the alkali reserve, owing to replacement of the Cl ion by CO_2. In the present case the low chloride is undoubtedly the result of vomiting, but the alkalosis that might be expected to accompany it is converted into an acidosis by reason of the complete phosphate retention. Even so, the acidosis is relieved somewhat by the vomiting of free HCl.

Plasma Protein and Cholesterol.—The total whole-blood cholesterol as determined by the colorimetric method of Myers and Wardell was at first low, but rose to 188 mg. per cent. before death. The plasma albumin was somewhat diminished, but the globulin definitely increased with inversion of the albumin:globulin ratio. There does not seem to be any obvious explanation of this curious finding, which is not common in uraemia unaccompanied by albuminuria.

DISCUSSION

In this unfortunate youth, then, we have an example of pure and uncomplicated uraemia which I believe to be comparable in every detail to that observed in experimental animals following total nephrectomy. It will be noted, however, that certain features which are usually regarded as the most typical of chronic uraemia in man are conspicuously absent in this case. Chief among these are the convulsive phenomena. On the other hand, the toxic features of uraemia are very marked. The question, therefore, arises: Do all the features of so-called "chronic uraemia" in man result from renal failure or do they not?

This is a matter which has given rise to endless confusion ever since the days of Bright. There is, however, a marked tendency nowadays to regard the convulsive phenomena which are often associated with renal failure as vasomotor in origin, since they are almost invariably accompanied by vascular hypertension, the actual convulsion being preceded by a sharp rise in blood pressure. This is a fact which can easily be verified by anyone who studies a case of "uraemic fits" with a sphygmomanometer. Such fits, therefore, cannot be regarded as uraemic at all, in the sense that the symptoms of the nephrectomized youth were uraemic. Their separation as a distinct entity is due mainly to the work of Volhard. Their association with the true biochemical syndrome of uraemia, as here defined, is in a sense fortuitous and due to the fact that most renal diseases which are accompanied by renal failure are also accompanied by hypertension and vasomotor phenomena. The term "acute uraemia," which is so often used to describe such fits, is a peculiarly objectionable one. It will be seen that in the case of *true* acute uraemia here described, both fits and hypertension were absent. It would certainly result in clearer thinking if the term "uraemia" were rigidly confined to the biochemical syndrome following renal failure, and all other features of different pathogenesis excluded.

There is thus no real difference between the uraemia of one disease and that of another, between the acute process of severe acute nephritis or bilateral obstruction of the ureters and the more insidious process of chronic nephritis or congenital cystic disease. The *apparent* clinical differences between one case and another are largely the result of the extrarenal factors which usually accompany the true biochemical syndrome, whereas the latter varies in degree only but not in kind from case to case. If this view were more generally adopted we would have less difficulty in understanding the nature of convulsions occurring in acute nephritis and in chronic nephritis, and distinguishing them from the true uraemic phenomena of the same diseases.

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A SURVEY OF 340 CASES OF ACUTE APPENDICITIS

BY

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Between December, 1927, and December, 1931, I operated on 340 cases of acute appendicitis admitted to the Dunfermline and West Fife Hospital. All the cases were operated on within a few hours of admission; delayed treatment of the Ochsner-Sherren type was not attempted. Excluded from this series are cases of subacute and catarrhal appendicitis.

STATISTICAL MATTER

The cases have been divided into three groups according to the type of operation performed. The first table shows the average length of time ill before operation and the mortality rate for each group. The appendix was removed in all cases, with the exception of thirteen, where abscess was present and the appendix inaccessible; in these, simple drainage of the abscess was instituted.

TABLE I.—*Results of Treatment*

Group	Type	Hours Ill (Average)	Operation	No. of Cases	No. of Deaths	Mortality
						Per cent.
1	Acute appendicitis	15	Appendectomy	223	1	0.99
2	Acute appendicitis with local peritonitis or abscess	80	Appendectomy where feasible and local drainage	64	3	4.7
3	Acute appendicitis with generalized peritonitis	56	Appendectomy and suprapubic drainage	53	10	18.8
			Total	340	14	4

In Table I the most noteworthy feature is the length of time ill before surgical treatment was sought. In Groups 2 and 3, which comprise 117 cases, it will be seen that more than fifty hours elapsed before these cases arrived for operative treatment. The cause of the delay was investigated, and in all but a small percentage was found to be due to the patient or his friends temporizing with homely remedies before calling in a doctor. It was surprising the large number of cases which had been supplied with castor oil or salts prior to having been seen by a doctor. This free exhibition of purgatives has much to do with the rapid advancement of the symptoms and the pathology of the disease. In several cases the delay was due to difficulty in diagnosis and temporizing until the diagnosis was definite. This was especially the case in patients whose appendix occupied the pelvic position. Of the fourteen fatal cases in this series no fewer than seven suffered from ruptured pelvic appendices, and the average length of time ill before operation worked out at eighty hours for the seven cases (Table II).

TABLE II.—*Fatal Cases*

No. of Case	Age in Years	Sex	Hours Ill	Position of Appendix	Operative Findings	Subsequent Treatment	Survived
1	5	F.	78	Pelvic	Ruptured; generalized peritonitis	B. welchii; enterostomy	72 hrs.
2	18	M.	82	Retrocaecal	Sphacelated; general peritonitis	B. welchii; enterostomy	7 days
3	51	F.	104	Splenic	Ruptured; general peritonitis	B. welchii	12 hrs.
4	6	M.	144	Pelvic	Ruptured; general peritonitis	Enterostomy	24 hrs.
5	43	M.	106	Lateral caecal	Appendix abscess; drainage only	B. welchii; developed subphrenic abscess	3 weeks
6	47	F.	268	Retrocaecal	Abscess; drainage only	B. welchii	5 days
7	60	M.	72	Retrocaecal	Ruptured; general peritonitis	B. welchii; enterostomy	5 days
8	25	M.	78	Pelvic	Diffuse peritonitis	enterostomy	B. welchii	7 days
9	39	F.	80	Pelvic	Ruptured; general peritonitis	B. welchii	13 days
10	25	M.	104	Pelvic	General peritonitis	Enterostomy	6 days
11	16	F.	30	Pelvic	Gangrenous appendix; no drain	Developed portal pyaemia	4 days
12	10	F.	48	Pelvic	Gangrenous appendix; local peritonitis	B. welchii; enterostomy	4 days
13	13	M.	56	Splenic	Ileocaecal abscess drainage	B. welchii	3 days
14	22	F.	48	Lateral caecal	Ruptured; general peritonitis	B. welchii	3 days

Thus out of fourteen fatal cases seven had the appendix in the pelvic position, three in the retrocaecal, two in the splenic, and two more in the lateral caecal. These figures seem to point to the pelvic position of the appendix being the most dangerous. As Cope has pointed out, local signs are few in pelvic appendicitis, and a rectal or vaginal examination is the only method of eliciting local signs in an early case.

TABLE III.—*Age and Sex Incidence*

Group	No. of Cases	Average Age in Years	Males	Females
1	223	23½	116	102
2	64	31	36	32
3	53	23	38	16
Total ...	340	—	190	150

The youngest in this series was 2 years of age, and the oldest 71. The sex incidence shows that 55 per cent. of the cases were males. This corresponds with what Sherren noted in 1925—namely, in 1903 acute appendicitis was two and a half times as common in the male as in the female sex. In 1907 there were 65 per cent. males; in 1922, 55 per cent. males.

TABLE IV.—*Position of Appendix in all Cases*

Position of Appendix	Number of Cases	Number of Deaths
Splenic	69	2
Retrocaecal	86	3
Pelvic	107	7
Lateral caecal	23	2
Iliac fossa and anterior caecal	24	0
Undescended	15	0
Not noted	16	0
Total	340	14

It will be noted that in this series the pelvic position of the appendix appears to be the most common.

PATHOLOGY

As regards the pathology of the disease the outstanding feature was the frequency of the acute obstructive appendicitis. Only ten cases of the 340 operated on showed a total absence of obstructive phenomena. The cause of the obstruction of the lumen, noted and arranged in order of frequency, was:

1. Faecal concretion or foreign body surrounded by faecal material—namely, wheat-ear, particle of enamel, coal, or hair, etc.—31 per cent.
2. Fibrous stricture obstructing the lumen—28 per cent.
3. Kinking the lumen by extra-appendicular adhesions, congenital or old inflammatory—17 per cent.
4. Torsion or kinking of meso-appendix—3 per cent.
5. In several cases the appendix was sphacelated, and it was impossible to tell the primary naked-eye pathology.

Late complications were few in this series, and are shown in Table V.

TABLE V.—*Late Complications*

Type of Complication	No. of Cases	Outcome
Subphrenic abscess	2	1 died; 1 recovered
Pelvic abscess	2	Both recovered
Faecal fistulae	2	Both closed spontaneously without operation
Post-operative hernia... ...	3	1 cured by fascial graft; 2 wearing belts

The frequency of general peritonitis is explained by:

1. The acute obstructive type of appendicitis, rapidly going on to gangrene and rupture of the appendix with general infection of the peritoneal cavity. (In one case the appendix was found ruptured four hours after the onset of the first symptom.)
2. The frequent administration of purgatives before surgical aid is sought.
3. The delay in time before surgical intervention.

TREATMENT OF GENERAL PERITONITIS

This, unlike the treatment of acute appendicitis, is not well standardized, and I propose to review the methods adopted in this small series of cases. It is now agreed that in general peritonitis the patient does not die from septicaemia, but from absorption resulting from obstruction of the intestine. Sampson Handley has stated that if peritonitis does not produce obstruction it may become universal without being fatal, and if obstruction has occurred, but is relieved, recovery is the rule. Sir Cuthbert Wallace has made the same statement in these words: "If the bowels can be made to act the patient recovers, if they fail to act he dies" (*Clinical Journal*,

1925). Alvarez (*Mayo Clinics, 1929*) has recently studied ileus, and he believes that ileus in peritonitis is not paralytic, but is due to an excess of nervous inhibition, the intestinal muscle being still capable of active contraction but being held in leash. Hotz (*Mayo Clinics, 1929*) suggest that in peritonitis injury to the muscle is not due to toxins, but to distension with gas. Gas accumulates when absorption is impaired, and distension of the gut closes (*a*) arterioles bringing the necessary blood to the muscle, and (*b*) venules of the portal system which normally carry gas away as fast as it is formed. These recent conclusions seem to indicate that the most necessary part of the treatment of peritonitis is to prevent or relieve intestinal obstruction.

The various methods used at different times to prevent or relieve the obstruction were:

1. Operative:
   (*a*) Jejunostomy (Victor Bonney); (*b*) ileo- or jejunocolostomy with caecostomy (Sampson Handley).
2. Antitoxic:
   Injection of *B. welchii* antitoxin (Williams).
3. Bile enemata (St. Leger Brockman).

OPERATIVE TREATMENT

The cases treated by enterostomy in this series, either at the time of operation or at a later juncture, numbered twenty-one, and among these there were seven deaths. In all the cases in which enterostomy was performed there was present a definite stiffening of the small intestine, with plastic exudate on the serosa and distension of the small intestine.

The enterostomy was performed by Witzel's or Coffey's method, and the catheter in all cases was brought through the omentum. In several cases a double enterostomy was done, one catheter being introduced high up and a second near the terminal ileum or into the caecum. The toxic content was thus allowed to drain away, distension was relieved, and at the same time 6 per cent. dextrose in normal saline was administered in large quantities directly into the lower bowel. It was often astonishing to see in the successful cases how the pinched, anxious, but perfectly conscious patient was transformed by even one dose of saline into a peaceful condition. The results of the enterostomy operation were quite gratifying when one considers the gravity of the patient's condition. In two cases faecal fistula developed after removal of the catheter, but both closed without operative intervention. In one case especially the life-saving property of this treatment was impressive.

TABLE VI.—*Enterostomy and its Results*

No. of Case	Age in Years	Hours Ill before Operation	Operation Findings	Treatment	Result
1	15	98	Abscess lateral to caecum leaking into peritoneal cavity; general peritonitis; ileus	Enterostomy; B. welchii	Cured
2	6	144	Advanced general peritonitis with ileus	Double enterostomy	Death
3	62	48	Ruptured appendix; general peritonitis with ileus	Enterostomy	Cured
4	5	72	General peritonitis; ileus	Enterostomy; B. welchii	Death
5	25	80	General peritonitis; ileus	Enterostomy; B. welchii	Cured
6	11	56	Ruptured appendix with general peritonitis; ileus	Enterostomy; B. welchii	Cured
7	11	72	Ruptured ileal appendix; general peritonitis	Double enterostomy; bile enema	Cured
8	59	42	Ruptured pelvic appendix; general peritonitis; ileus	Enterostomy; B. welchii	Cured
9	18	82	Six days post-operation for acute appendicitis; general peritonitis; ileus	B. welchii; double enterostomy	Death
10	12	36	General peritonitis; distended ileum	Enterostomy	Cured
11	51	104	Diffuse peritonitis; ileus	Enterostomy	Death
12	60	72	Ruptured appendix; general peritonitis; ileus	Double enterostomy	Death
13	26	78	Diffuse peritonitis; ileus	Enterostomy	Death
14	39	80	General peritonitis; ileus	Enterostomy	Death
15	51	12	Abdomen full of watery pus; not drained. Reopened four days after; plastic peritonitis; ileus	Enterostomy; B. welchii	Cured
16	48	50	Plastic peritonitis; ileus	Enterostomy	Cured
17	55	130	General peritonitis; ileus	Enterostomy	Cured
18	2	120	Undescended caecum; general peritonitis	Enterostomy	Cured
19	42	240	Abscess drained; developed spreading peritonitis; ileus	Enterostomy	Cured
20	58	48	Ruptured appendix; general peritonitis; ileus	Enterostomy; B. welchii	Cured
21	15	72	General peritonitis; ileus	Enterostomy; B. welchii and bile enemata	Cured

Mrs. C., aged 58, was ill for three days with abdominal pain and vomiting, for which she had taken salts. On admission to the nursing home, seventy-eight hours after the onset of symptoms, she had definite signs of general peritonitis—rigid, distended, tender abdomen, etc. Temperature 102°, pulse 130. Operation revealed generalized peritonitis due to rupture of a gangrenous appendix lying in the pelvis. Appendectomy and suprapubic and local drainage were performed, and an enterostomy carried out. She remained well till the second day after operation, when she became delirious and pulled out the enterostomy tube. On the following day she became distended, vomited copious dark vomit, and looked like dying. Under local anaesthesia a second enterostomy was done, the first distended loop presenting being used. The drainage from this was copious, and in forty-eight hours she became very much improved, and gradually got completely well.

B. WELCHII ANTITOXIN TREATMENT

B. W. Williams, believing that the intestinal paresis might be due to toxin derived from the *B. welchii* which he found to be abnormally increased in the distended bowel, introduced the use of antitoxin in intestinal obstruction and the ileus of peritonitis. It was administered alone, or was given after enterostomy, in twenty-seven cases in this series. There were eight deaths in the twenty-seven cases.

The dose given was 40 c.cm. at the time of operation, repeated twice in twenty-four hours for several days (up to four). The intravenous route was used at the time of operation and the intramuscular afterwards. When given alone before ileus was complete, distension seemed to be relieved and vomiting diminished. The temperature and pulse were lowered, and flatus was passed. In one case it appeared to mask the signs of a spreading general peritonitis until the sixth day after operation.

H. H., aged 18 years, was admitted eighty-two hours after the onset of acute abdominal symptoms. Operation showed a sphacelated retrocaecal appendix, with local peritonitis. Appendectomy and local drainage were carried out, and 40 c.cm. of *B. welchii* antitoxin was administered intravenously and repeated intramuscularly twice daily until the fourth day. The patient had no post-operative vomiting. Temperature and pulse came down to normal, there was no distension, and flatus was passed freely. On the sixth day he complained of pain, commenced vomiting, and the abdomen became rigid. Operation under local anaesthesia revealed a diffuse peritonitis, and, although an enterostomy was performed, he died in forty-eight hours. The difficulty of spotting a spreading post-operative peritonitis is well known, but in this case the signs seemed to be masked by the use of the antitoxin.

BILE ENEMATA

Bile is believed to contain a stimulant to peristalsis, and St. Leger Brockman reported some striking results from its use in intestinal obstruction. In the present series bile was taken from a cholecystostomy case in the ward at the time, or the dressings from a case of biliary fistula were utilized after soaking them in normal saline. One-half to two ounces of bile in six ounces of saline was

administered per rectum every four hours. This treatment seemed to act extremely well in the five cases in which it was tried by the writer. In the *Mayo Clinics, 1929*, Alvarez suggests the use of choline, which is said to be a normal constituent of intestinal muscle and concerned with maintaining peristalsis.

TABLE VII.—*Use of Bile Enemata*

No. of Case	Age in Years	No. of Hours Ill	Operative Findings and Treatment	Post-operative Treatment	Result
1	11	72	General peritonitis from ruptured appendix; ileus—enterostomy; B. welchii antitoxin	Distension persisted; 1 oz. bile run into bowel through enterostomy tube	Cured
2	14	38	Localized pelvic peritonitis from ruptured appendix—local drainage	Marked post-operative distension and vomiting dark brown fluid; 1 oz. bile in four-hourly enema	Cured
3	48	48	Ruptured appendix; general peritonitis; 2 free concretions	Post-operative distension; vomiting; 2 oz. bile in saline, four-hourly enemata	Cured
4	14	78	General peritonitis; ruptured appendix—enterostomy	Post-operative distension; vomiting; B. welchii; 2 oz. bile in four-hourly enemata	Cured
5	15	72	Ruptured appendix; general peritonitis—enterostomy	Post-operative vomiting and marked distension; 2 oz. bile in four-hourly enemata	Cured

SUMMARY

In the treatment of general peritonitis discussed above, successes have been obtained from the use of: (1) operative measures—namely, enterostomy; (2) *B. welchii* antitoxin injections; and (3) bile enemata.

RECTAL PARALDEHYDE BEFORE OPERATION

BY

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The anaesthetic is frequently a cause of much distress to the patient, both in anticipation and during its actual induction. The anaesthetist is not infrequently informed that the thought of the anaesthetic is more distasteful than is the thought of the operation itself. It is not without cause, therefore, that anaesthetists are much concerned with the problem of improving conditions for the patient, in what is almost invariably an ordeal. One obvious method of achieving this consists in appropriate premedication with a view to inducing in the patient before the operation a state of oblivion, or at least of indifference. This can be accomplished, with varying degrees of success, safety, and consistency, by the use of such drugs as hyoscine, nembutal, sodium amytal, luminal, avertin, and paraldehyde. Since the last-mentioned drug has probably been less used for the purpose than have the others, I should like to report my experiences based on a series of some 500 cases in which the paraldehyde has been administered rectally before operation.

The paraldehyde is given in a solution with saline, well shaken together, in the relative proportions of one and a half ounces of saline to each drachm of paraldehyde. The adult dose is 8 drachms of paraldehyde—that is, 12 ounces of solution—except where the patient's weight is less than 8 stone, when the amount is calculated on a basis of one drachm of paraldehyde for each stone of body weight. The average dose of 8 drachms need rarely be exceeded for any patient, and may often be somewhat reduced without any sacrifice of results. Experience has shown that these relative proportions of paraldehyde and saline must be adhered to; a reduction in the saline content is likely to mean that some of the solution will be returned from the rectum. The properly proportioned solution is nearly always retained without difficulty if its introduction is effected slowly. The paraldehyde used must be fresh. It undergoes chemical change if kept too long, and the use of such paraldehyde may lead to transient diarrhoea after operation; no irritation occurs if the fresh drug is used.

ADMINISTRATION

The procedure is as follows. The evening before operation the patient is given an enema, and a sedative such as veronal, dial, or phanodorm. The following morning, one and a half hours before operation, 1/100 grain of atropine is administered hypodermically (no morphine is given), and immediately afterwards the paraldehyde solution, freshly mixed and thoroughly shaken, is slowly introduced into the rectum by means of a catheter. Retention is rarely difficult; sleep usually intervenes within a few minutes, and this is not disturbed when the time comes for removal of the patient to the operating theatre. The patient remains oblivious to the administration of the anaesthetic, and induction, by any of the usual methods, is singularly easy and rapid, owing to the complete absence of resistance or excitement. The maintenance of anaesthesia is a simple matter and a surprisingly small quantity of anaesthetic agent is required, even where muscular relaxation is called for. After the operation the patient sleeps quietly for a variable number of hours. He can be awakened during this period, but quickly goes off to sleep again. Spontaneous awakening usually occurs from five to eight hours after the operation, the patient remaining drowsy and comfortable for a considerably longer period, and securing, in most cases, a restful first night, often without the aid of morphine.

ADVANTAGES OF PARALDEHYDE PREMEDICATION

The method, observed in a large number of cases, appears to offer certain definite advantages, the chief of which, from the patient's point of view, is the total elimination of the unpleasantness associated with his introduction to the operating theatre, and of the still greater unpleasantness of the anaesthetic. The drug is so consistent in its action that the nervous patient can, if desired, be confidently promised that he will go to sleep quietly in his own room and that he will know nothing of operating theatre or anaesthetic. Post-operative vomiting appears definitely to be reduced, thanks no doubt to the relatively small quantity of anaesthetic required. One-half or one-third of the usual quantity of anaesthetic will, as a rule, suffice to produce the desired anaesthesia—an important advantage in long operations, where the large quantity of a toxic anaesthetic agent normally required is a matter of serious consequence to the patient.

From the anaesthetist's point of view, no greater advantage can be mentioned than the facility with which gas and oxygen can be administered after paraldehyde premedication. Upper abdominal operations are possible without the use of additional ether and with completely adequate muscular relaxation. I believe that, for gas and oxygen, it is the premedication method of choice, and will often serve to afford the patient the advantage of a pure gas and oxygen anaesthesia where this would otherwise be difficult or impossible.

The remarkable degree of post-operative comfort enables the surgeon to limit the morphine administered

—an undoubted advantage from the point of view of those who, while admitting the necessity of morphine, are disposed to associate it with the intestinal atony and consequent flatulent distension which lead to much discomfort, and with the post-operative circulatory depression which may be the initial factor in the causation of a subsequent pulmonary embolism. In respect of safety and certainty of action, paraldehyde premedication appears to compare favourably with that effected by such drugs as hyoscine, nembutal, luminal, and avertin. Comparison with avertin is particularly interesting. This would appear to favour paraldehyde by reason of its intrinsic safety as a drug, the absence of any blood pressure fall after its use, and the simplicity of the technique involved, while results are at least as certain and as consistent as those obtained with avertin.

Disadvantages are few. The unpleasant odour of paraldehyde appears in the breath shortly after the rectal administration ; this, however, is a disadvantage of which the patient remains unaware, and of which only the nursing staff are conscious. The quiet respiration characteristic of the somnolent period following operation does not appear to increase the risk of respiratory complications. In some 500 cases no trouble of this kind has been experienced, nor has the carbon dioxide cylinder been more than ordinarily employed. Transient excitement occurs in a small number of cases, either immediately after the drug has been administered or on awakening. The occasional occurrence of this phenomenon, which is always of short duration and is of little significance, is characteristic of any drug given for purposes of premedication.

SUMMARY

Rectal paraldehyde provides a safe and certain method of eliminating for the patient the more unpleasant accompaniments of operation. He simply sleeps, and when he awakes finds that the ordeal is over—a state of affairs regarding the advantage of which the patient with previous experience of anaesthesia and operation is usually most emphatic. He remains relatively comfortable during the trying twenty-four hours following operation, and subsequent distressing recollections are absent. Preliminary rectal paraldehyde, while facilitating the anaesthetist's task, adds nothing to his anxieties concerning the patient either during or after the operation. His patient's gratitude provides a somewhat novel and not unpleasing experience.

TROPICAL TYPHUS*

BY

WILLIAM FLETCHER, M.D., M.R.C.P.

The great epidemics of the war, the discovery of the Weil-Felix reaction, and the study of Rickettsia stimulated the investigation of typhus all over the world. The results have shown that it is but one of a group of Rickettsial diseases carried by arthropods, and that in this group rodents play an important part as reservoirs of infection. It is possible that Rickettsiae were originally parasites of the plants which form the food of adult mites, and that the earliest typhus-like diseases were those carried by mites or ticks. Typhus exanthematicus probably appeared when men took to wearing clothes, and the virus became adapted to the body-louse. There is no evidence that an infection with mite- or tick-borne virus can at any moment give rise to an epidemic of typhus in the presence of human lice, but Anigstein[1] states that he has succeeded in infecting the latter with the virus of the non-louse-borne tropical typhus, both by feeding and by injection.

FEATURES OF THE DISEASE

The symptoms of tropical typhus are those of typhus exanthematicus, but as a rule the fever is less severe and more remittent, the rash is often inconspicuous or absent, and the nervous symptoms are less prominent ; occasionally, however, a severe case occurs, with petechial rash, coma, and other symptoms indistinguishable from those of typhus. The morbid anatomy and serology of the disease, together with the results of animal inoculations, show conclusively that it is a member of the typhus group. Lewthwaite[2] has found, both in the brains of fatal human cases and in those of guinea-pigs and rats inoculated with infective material, vascular lesions similar to those occurring in typhus fever, and he has also demonstrated Rickettsiae within the swollen endothelial cells of the affected vessels. Guinea-pigs react less readily than is the case in typhus exanthematicus. Only 5 to 10 per cent. give a febrile reaction after inoculation with human blood, but, according to Lewthwaite,[2] there is a pronounced loss of weight in about 25 per cent. Rats are more susceptible, and a febrile reaction occurs in 27 per cent. Anigstein[1] has reported the occurrence of the Pinkerton-Mooser reaction in about 6 per cent. of inoculated guinea-pigs. This reaction, which occurs regularly in Mexican typhus, consists of swelling of the scrotum and injection of the tunica vaginalis, in the exudate of which Rickettsiae are found in great numbers. A positive Weil-Felix reaction is obtained in many of the rabbits and rats inoculated with patients' blood (Anigstein[1]). Lewthwaite is now employing with success the intraocular method of inoculating rabbits, which Nagayo has used both in the tsutsugamushi disease and in typhus.

In spite of these numerous points of close resemblance, tropical typhus differs utterly from typhus exanthematicus in its epidemiology ; it neither spreads from man to man nor occurs in epidemics. We[4] had not been working at it for long before we found that it was not a single disease, but two, there being an urban and a rural (or scrub) form. The two are clinically indistinguishable, but in their aetiology and epidemiology they are as different from each other as Rocky Mountain fever is from typhus exanthematicus.

Urban Form

The urban form attacks more especially those who work in stores—particularly food stores—and in Kuala Lumpur many of the cases come from streets where sporadic plague sometimes occurs. As in Brill's disease, the reservoir of infection is probably the rat, and the vector *Xenopsylla cheopis*. The disease is never epidemic because it does not kill the rats, and therefore the rat-fleas are not constrained to seek strange and unpalatable hosts. The Weil-Felix reaction is positive with X 19, and this urban form is evidently very closely related to Brill's disease, in which the virus is almost identical with that of typhus exanthematicus. The mortality is negligible. The rural form is also very mild as a rule, but occasionally it is severe, and in 1929 there were eleven deaths among 154 cases.

Scrub Typhus

The rural form, or scrub typhus, occurs in all parts of the Malay States and in the Dutch Indies, but though its distribution is wide it is patchy, and the infected places are circumscribed areas of untilled open country, especially land which, after being cleared of jungle, has been allowed to grow up in weeds and scrub. The lack

* Read in the Section of Tropical Medicine at the Centenary Meeting of the British Medical Association, London, 1932.

of contagion from person to person made it probable that there was some reservoir of the virus other than man, and rats had long been under suspicion, when, among 200 caught in an endemic area, Anigstein[1] found several whose blood agglutinated either X 19 or XK (the Kingsbury strain), and in nine a typical scrotal swelling, with abundant Rickettsiae in the exudate.

Scrub typhus is essentially a place disease ; the infection does not lie in man or his belongings, but lurks in the rank weeds and vegetation of certain limited foci. A striking example of this is afforded by a plantation of some 3,000 acres where African oil palms are cultivated, and where several cases have occurred almost every month for the last six years. The infection is not distributed generally throughout the plantation, but is concentrated in those parts of it where young trees are being pruned of their dead flowers. Lewthwaite[3] has found that the disease is almost completely limited to the coolies whose work brings them into close contact with the trees, and that those who are employed in making roads and ditches are rarely infected ; the watchmen and others employed about the lines escape entirely, and so do the children until they are old enough to go to work. It seems probable that the palm trees harbour the vector, and Gater[5] has found that the dead flowers are infested by enormous numbers of mites. Numbers of mites, notably *Trombicula deliensis* and *T. akamushi*, are also present in the ears of the rats which live in the infected areas, and they are sometimes found on the coolies when they return from work. The disease is by no means limited to oil-palm estates, but is often associated in a curious way with the coarse grass which is used as fodder for cattle, and sixteen of the first thirty cases recognized in the Malay States occurred either in cowherds or bullock-cart drivers. The rural form of tropical typhus is not so nearly related to typhus exanthematicus or to the urban form of tropical typhus as it is to the mite-borne tsutsugamushi disease, which it resembles closely both in its clinical features and in the kinds of places where it is found. The two diseases have, in fact, occurred side by side within the same endemic area. Further, the " K " strain of *B. proteus* is agglutinated in both diseases (though not to the same extent in the tsutsugamushi disease), but in neither of them is the Weil-Felix reaction positive with the X 19 strains, which are agglutinated in typhus exanthematicus and in the urban form of tropical typhus.

WEIL-FELIX REACTION

It was generally accepted a few years ago that the Weil-Felix reaction was a heterologous agglutination due to the power acquired by the serum in typhus of agglutinating various organisms, such as Plotz's diphtheroid and Wilson's " U 3," which clearly have no causal connexion with the disease ; but evidence is accumulating which shows that the relation of *B. proteus* X to the virus of typhus is something closer than this. In the flea-borne endemic typhus (Brill's disease) of the United States, which is so closely related to typhus exanthematicus that cross-immunity between them is complete, the Weil-Felix reaction with X 19 is positive. In the tick-borne fever of the Rocky Mountains—less closely related to typhus exanthematicus, and with no cross-immunity—the reaction is irregular, suggesting a group agglutination. Lastly, in the third section of the typhus group, which comprises the mite-borne tsutsugamushi disease and the closely related rural form of tropical typhus, *B. proteus* X 19 is not agglutinated, but the " K " strain, which is probably a modification of X 19, is agglutinated in high dilution ; and it is interesting to note that Anigstein[1] has recently stated that he has recovered a strain of XK from the urine in a case of tropical typhus.

These facts are evidence against the view that the Weil-Felix reaction is a non-specific para-agglutination, and, as Felix[6] has pointed out, they suggest that the several diseases of the typhus group are due to modifications of the same virus associated with special modifications of the " X " type of *proteus*. Infection with typhus virus produces finely granular-agglutinating O-type agglutinins, but infection with *B. proteus* produces coarsely granular-agglutinating H-type agglutinins. Felix[6] has described the examination of a serum from the Malay States which contained only H-type agglutinins, thus indicating an infection with *B. proteus* ; but Dr. R. Lewthwaite, who sent this serum to the Lister Institute, has since told me that the course of the patient's illness, the symptoms, and the rash were indistinguishable from those of typhus. Such cases as this appear to afford another connecting link between *proteus* and typhus. Weil and Felix[7] advanced the hypothesis some years ago that *B. proteus* X was a saprophytic stage of *R. prowazeki*, and in support of this Anigstein[1] states that the XK strain which he isolated from the urine of a tropical typhus patient became transformed into Rickettsia when he injected it into lice.

RICKETTSIA

The plentiful supply of organisms found both in the tunica vaginalis of guinea-pigs infected with Brill's disease or with Rocky Mountain fever, and in the eyes of rabbits and guinea-pigs after the inoculation of tsutsugamushi or typhus virus into the anterior chamber, has greatly facilitated the study of mammalian Rickettsia. Several workers have cultivated Rickettsia in the presence of living tissue. Nigg and Landsteiner[8] succeeded in doing this, without loss of virulence, from the tunica of guinea-pigs infected with Brill's disease, in a medium consisting of salt solution with serum, with the addition of minced normal tunica or peritoneum ; but they were unable to grow the organisms apart from the living tissue. A few investigators, on the other hand, claim success in this respect with the Rickettsia of both arthropods and mammals, but their results have not, so far, been generally accepted. In tropical typhus Anigstein[1] reports that he succeeded in cultivating seventy-six strains in a digested meat broth containing glucose and ascitic fluid, with subsequent growth on chocolate agar. These strains comprised thirty from the blood and organs of human cases, twenty-four from guinea-pigs and rabbits, twenty from rats, and two from lice fed on patients. The inoculation of some of these cultures into guinea-pigs caused a typhus reaction with a typical scrotal swelling and associated Rickettsia, and some of the rats and rabbits which were inoculated gave a subsequent Weil-Felix reaction. The cultures all resembled Rickettsia when first isolated, but on subculture, or passage through animals, fifteen of them grew as spreading films consisting of long threads, and twelve of the fifteen were agglutinated with serums prepared with X 19 or XK, and by the serums of patients. Anigstein's work needs confirmation, but apart from it there seems to be sufficient evidence that Rickettsia constitutes the virus of tropical typhus.

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A CASE OF SPONTANEOUS ACUTE MYXOEDEMA

BY

H. A. WATNEY, M.B., B.S.,

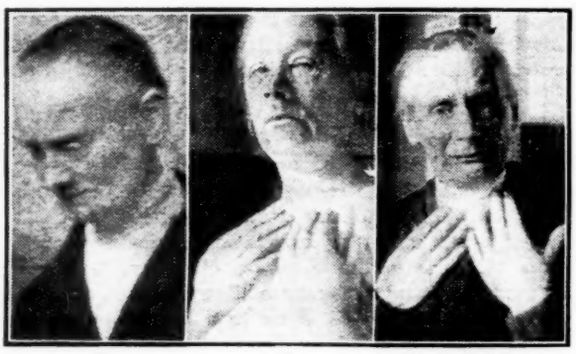
AND

A. H. DOUTHWAITE, M.D.

The rarity of the rapid development of pronounced myxoedema is reason enough for the publication of the details of this case, which is further signalized by the occurrence of a similar instance in the family.

HISTORY OF CASE

Miss X, aged 63 years, was seen by one of us (H. A. W.) on February 4th, 1932. She complained of drowsiness, swelling of eyelids, increase of weight, and snoring.



I Sept. 30th, 1931. II Feb. 6th, 1932. III March 25th, 1932.

Family History.—The patient had two sisters, one of whom is living and was seen by us. She was of normal stature, but her hair was scanty and brittle, and the margin was situated at least an inch further back than is usual in women. Her garrulity again reminded one of the type of patient with myxoedema who presents this as an outstanding symptom. The other sister, with whom the patient used to manage a farm, was always fat and lethargic, and, in fact, accomplished about one-eighth of the daily work, while our patient did the remainder. In 1930 her weight rose from 11 to 17 stone in less than six months, and, when seen by one of us (H. A. W.) within two days of her death, she presented all the characteristics of well-established myxoedema. She rapidly became comatose, and died in spite of active thyroid medication.

Previous Illnesses.—None. Menopause at 40 years of age.

Present Illness.—The patient had always been thin, wiry, and energetic (see Photograph I), her usual weight being 6 stone. The scalp hair had been scanty as long as she could remember. Her weight was known to be 6 stone at the beginning of October, 1931. She first noticed the onset of lassitude, increasing weight, and shortness of breath in December, 1931. During the last few weeks her voice had developed a muffled quality. On February 3rd she decided to consult her usual medical attendant (H. A. W.), and for this purpose had to travel for some distance by train. This fact is emphasized because it implies ability to attend to details, which was completely lost by February 4th, when she was first seen.

Examination (February 5th).—Weight 9 stone. Hair harsh, brittle, and lifeless. Pubic hair scanty. Eyebrows sparse. The whole body appeared to be swollen, a feature well illustrated in the shapeless fingers. The skin was dry and scaly, with a tendency to crack. The eyelids, especially the upper, were puffy and semi-translucent, suggesting oedema; this, however, was not present. Supraclavicular pads, the size of oranges, were of the consistency of loose fat. Above the patellae the skin of the thighs was thrown into transverse rolls. There was true oedema about the ankles. The lips were thickened and moved en masse. The palate was pale, infiltrated, and mobile only as a semi-rigid sheet. The tongue was considerably enlarged. The breasts were abnormally small. The voice was monotonous and "leathery." The peculiarities of the nervous system were torpor (from which the patient could be aroused to answer a question), enfeebled memory, and remarkably brisk knee-jerks. If left to herself she would fall at once into a deep sleep, characterized by loud snoring, a feature of three weeks' duration. The temperature was 97° (97.6° rectal at 5 p.m.), the pulse 68. The heart was somewhat enlarged to the left; the blood pressure, 160/90. Respiration was shallow and sixteen per minute: the lungs were normal. There was pronounced pyorrhoea. The thyroid gland could be felt as a shrunken, hard remnant. No other abnormalities were observed, for there were no facilities for estimation of the basal metabolic rate. The three photographs illustrate the pre-myxoedematous and myxoedematous appearances, and also the changes induced by treatment with thyroid extract in a few weeks.

Treatment.—Owing to the rapid increase of drowsiness and weakness in the last twelve hours, and in view of the tragic history of the patient's sister, it was decided to give full doses of thyroid extract at once rather than risk losing valuable time by the usual method of careful gradation of dosage. Accordingly, 3 grains of the extract (15 grains whole gland) were injected subcutaneously, and 8 grains of whole gland given by mouth at the same time. The latter dose was continued thrice daily.

Progress.—Within twenty-four hours the temperature rose to 98° (rectal) and lethargy was less pronounced. In three days the temperature was 99.8 (rectal); pulse 76; respiration 20. The dose was reduced to 4 grains of whole gland three times daily. By February 17th the weight had fallen by 7 lb., and the mentality was quite normal. Photograph III shows the result a few weeks later. The patient has returned to her work and is in normal health. She is now taking 2 grains of whole gland twice daily. In view of the possibility of the dental infection having been responsible for the sudden failure of a thyroid already devoid of reserve, this feature has been dealt with by piecemeal extractions.

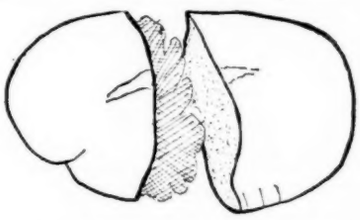
Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

AN UNUSUAL CASE OF RUPTURED SPLEEN

The following case seems worthy of publication in that a severe intra-abdominal injury was sustained after comparatively slight trauma.

A girl, aged 9, was running along a garden, when, just before reaching a step, she tripped and fell, striking her left costal margin and epigastrium on the edge of the step. She got up and went into the house and complained to her mother



that she did not feel well. The mother did not pay much attention to this, and as it was 9 p.m. put the child to bed and took no further notice until she vomited; the child vomited twice more during the night. When I first saw her, at 9 a.m. the following day, she was pallid and collapsed, with pulse rate 120, respiration 30, temperature 98° F. She complained of pain in the left shoulder and mild pain in the epigastrium, which was described as resembling stomach ache. There was no injury or abnormality in the left shoulder area, but on examination of the chest the movements of the lungs were found to be poor; there was dullness at the left base and the breath sounds were indistinct. The abdominal movements were also poor, and there was generalized rigidity and tenderness, the tenderness being greater in the left hypochondrium. A diagnosis of rupture of the spleen was made. When the

patient was admitted to hospital the pulse rate was 140 and temperature 97°, and the collapse was more profound. Haemostatic serum and calcium were administered intramuscularly, and her condition improved slightly.

Operation.—The child was seen by Mr. David Levi at 9 p.m., and he operated immediately. A mid-line incision demonstrated that the peritoneal cavity was full of blood. The child was extremely ill. The opening in the abdominal wall was enlarged by a second incision carried transversely through all layers towards the left flank. The spleen was exposed, and was found to be torn almost completely in half. The splenic vessels were clamped, and a transfusion of 650 c.cm. of citrated blood, which had previously been obtained from the father, was given. Splenectomy was performed and the abdominal wall closed. At 11.30 p.m., although the pulse rate was still 140, the volume improved, and the patient lost her blanched appearance. The temperature remained at about 100° until the tenth day, when the stitches were removed, the pulse rate having returned to normal on the morning of the third day. The temperature showed a morning rise to 99° on several occasions during convalescence, but settled down satisfactorily on the twenty-second day. The child was discharged from hospital at the end of the fourth week. Two months after the operation the abdomen was firmly healed and the muscle action excellent. Always rather a nervous child, she has tended to be more excitable since the accident.

In the *Annals of Surgery* (June, 1922) several instances of rupture of the spleen were recorded. These have been divided into four groups: (1) those which succumb to the initial shock; (2) those in which signs of injury are not apparent until the patient has recovered from the initial shock; (3) those with delayed signs of an intra-abdominal lesion; and (4) those which recover spontaneously.

The case I have described falls into Group 3. A point of great diagnostic and clinical interest was the severity of the pain which was referred to the left shoulder. The patient was a nervous child, and was apprehensive at the time of the examination. I am convinced that she actually felt more pain in her shoulder than she did in her abdomen.

Greenford, Middlesex. ANGUS WESTON, M.B., Ch.B.

TABES NOT PREVENTED BY NATURALLY ACQUIRED MALARIA

The absence of neurosyphilis in syphilized but malarial countries originally gave rise to the treatment of neurosyphilis (particularly of general paralysis) by malaria. Tabes has also been similarly treated by many workers, with benefit in some cases; and malaria has been advocated for prophylaxis in cases in which there are no neurological signs but in which the serology remains abnormal despite the usual remedies. The following case is therefore of interest.

HISTORY OF CASE

The patient is a male, aged 45. Onset of lightning pains and urinary disturbance occurred in April, 1932, followed by rapid development of impaired deep sensation in the lower limbs. Wassermann reaction was positive in both blood and cerebro-spinal fluid.

The patient served in the Regular Army in India from 1910 to 1913. During this period risks of infection were frequently taken, but no signs of venereal disease were observed. No risks of infection have been taken since 1913. Between 1911 and 1914 he had numerous attacks of malaria, and one further attack after 1920.

At the present time the lightning pains have gone, but there is urinary disturbance, ataxia, and loss of knee- and ankle-jerks. The pupils are normal and react to light.

COMMENTARY

The history of this case strongly suggests that syphilis was contracted between 1910 and 1913. During the same period, and afterwards, the patient was infected with naturally acquired malaria. There is nothing to suggest that the syphilitic infection was acquired after the malaria had died out. The absence of an observable primary lesion is by no means uncommon in cases that subsequently develop neurosyphilis, and indicates a failure of skin reaction to the spirochaete, and possibly also a failure of natural antibody production. The coincidence of another infection, such as gonorrhoea, may eliminate or obscure the normal local reaction. It is a not unreasonable conjecture in this case that the coincidence of malarial infection may have prevented the development of the usual primary lesion.

In a survey of the literature two parallel cases are found. Uhlenbrück in 1931 (*Therapie der Gegenwart*, March, 1931, p. 105) mentions a case of his own in which malaria, naturally acquired two years after syphilis, did not prevent the supervention of tabes, and quotes another similar case, reported by Richter, in which malaria in the early stage of syphilis did not prevent tabo-paresis.

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ACUTE SYMPTOMS FOLLOWING WORK WITH HAY

The summer of 1931 proved a very bad season for haymaking in Westmorland owing to rain, and much of the hay was eventually taken in in an unsatisfactorily damp condition. The inevitable result was the development of a great deal of mould, especially in the lower strata, so that working with it later produced dense clouds of "white" or "hay" dust, stated by those afflicted to be the worst they had ever experienced. In the ordinary course of farm-work transient cough and wheeziness are recognized effects of contact with "white" dust, but in five of the cases which I had the opportunity of examining the symptoms were so severe that they seem worth recording. These cases were seen during the period April to June, 1932, which in itself is significant as being the period when the supply of last year's hay was nearing the end. As the onset and course of the disease were almost identical, they may be grouped.

All the patients were farmers or farm labourers, whose ages ranged from 21 to 46 years, and whose previous health records were good—one had had bronchitis as a child, and one (E. W. H.) had had influenza three years previously. Their family histories gave no special information beyond the fact that two had had relatives who had at one time been affected moderately with "hay" dust.

The onset was very similar in each case: a noticeable shortness of breath for some weeks previously whilst carrying out the normal routine, including work with hay, until a climax was reached by some specific act (for example, clearing out the remainder of the hay from a barn) and within thirty-six hours the man was extremely dyspnoeic—a step or two being impossible—distressed, and cyanosed, and appeared almost *in extremis*.

It was about three weeks later that most of these cases were seen by me, when doubts arose as to the possible existence of tuberculous infection. At this time dyspnoea was still severe, even the taking off of a pyjama jacket causing distress, and there was still some cyanosis. Cough was never a very troublesome symptom, and was almost unproductive—a watery, or slightly muco-purulent, sputum, with a good deal of froth, being sometimes obtainable. No history of any stained sputum was noted. Pain was not complained of, though two men mentioned tightness or oppression across the chest. Temperature was mildly febrile at onset, but soon returned to normal. Nothing abnormal was noticed in the cardiac condition. All complained of loss of flesh, some to a marked extent.

Clinically the chest expansion was good; there was no dullness on percussion, and dry rales and sibilant rhonchi were audible over most of the lungs; no change of V.R. (one patient, E. W. H., did show other signs). Blood sedimentation

rate was taken in three patients, and two of these were normal, the third (E. W. H.) showing a "diagonal curve."

Later, when the patients were able to attend for *x*-ray examination, films showed a generalized, very fine granular stippling (reminiscent of, though much finer than, silicosis), with some fibrosis spreading from the hilum. Several of these patients have been examined three to four months afterwards, and, except E. W. H., have very gradually lost their shortness of breath. No other symptoms remained troublesome, and the chest signs later were practically negative. *X*-ray films now showed very little stippling, but an increasing tendency to fibrosis.

This "hay" dust, when allowed to settle on a clean plate, was found to be a soft, slaty-grey powder. Samples of sputa were examined when obtainable, and showed no tubercle bacilli; though in one case a definite fungus was found, this finding was not repeated, either in this patient's or in any other patient's sputum, and no other clues to a possible cause were found in the sputa. Though samples of the hay dust were examined and several fungi recognized, no evidence of any correlating factor could be found.

I am indebted to Dr. Sprott (Appleby), Dr. Caldwell (Milnthorpe), and Dr. King (Kirkby Thore) for bringing these cases, and other mild ones, to my notice, and granting me permission to record them.

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Grange-over-Sands.

Reports of Societies

SKIN TESTS IN TUBERCULOSIS AND EXANTHEMATA

At the meeting of the Medical Society of London on December 12th, with Sir JOHN BROADBENT in the chair, the subject of "Skin tests in tuberculosis and exanthemata" was discussed.

Dr. R. A. O'BRIEN spoke in particular of tuberculin. The old tuberculin of Koch, he said, from a chemical point of view, was complicated, containing various chemical bodies. For many years it was assumed that one hypothetical body was responsible for the intradermal reaction, the rise of temperature and focal reaction which followed subcutaneous injection, and the material which cured tuberculosis. With the progress of biochemical research there was a tendency to separate these activities. Research had mainly concerned itself with the hypothetical substances causing skin reactions in infected animals. From tuberculin grown on a synthetic medium two, or a series, of substances could be separated: first, a carbohydrate (polysaccharide), which gave a precipitate with the serum of an animal injected over a long period, and which might produce anaphylactic shock in a healthy animal sensitized to the carbohydrate; also, a protein, which was lethal to tuberculous animals, and was apparently the main cause of the skin reaction. Some day he hoped it might be possible to get away from this mixture and use pure tuberculin for, at all events, intradermal testing. What was the exact nature of the positive response? The positive response in an animal like a guinea-pig meant active and progressive tuberculosis. In man some work in South Africa showed a large percentage of response among natives before they went to work in the mines round about Johannesburg, and among those who showed this reponse the incidence of active tuberculosis developing during their work in the mines was very high. These conditions did not seem to hold always in white populations. He referred to an investigation which had taken place at Oslo, concerning hospital nurses, a large percentage of whom, after having shown a negative Pirquet reaction, developed tuberculosis during their hospital experience, while others who showed a positive reaction did not develop the disease. The speaker had endeavoured to obtain some idea of the risk to nurses and medical students in hospitals in England. Dr. R. C. Wingfield of Frimley Sanatorium had given him his own impression that nurses, whether in general or tuberculosis hospitals in England, showed about the same incidence of tuberculosis as the general population, and that the same applied to doctors and students. Dr. O'Brien exhibited the figures for one of the large London teaching hospitals, where 250 to 300 nurses were always in training, and among these the cases of declared phthisis, suspicious pleurisy, and tuberculous adenitis altogether amounted to somewhere about 1 per cent. per annum. The risk rate appeared a little higher among medical students than among nurses, but it was clear that the risk of developing active tuberculosis among nurses and students was not alarmingly large, though he believed it was somewhat higher than among a comparable section of the general population.

Dr. WILLIAM GUNN discussed the tests in exanthemata. Speaking of the Schick test, he said that there was an almost unanimous consensus of opinion regarding its potency. There was ample proof, on clinical and epidemiological grounds, that the average population was submitted occasionally to some dose of the organism of diphtheria. In the great majority of cases the Schick-negative reactor tended to eliminate the invading organisms forthwith before they multiplied; but in some immune subjects the organism might multiply for a time and be shown in the catarrhal discharges. For all practical purposes the Schick-negative state implied protection from clinical attack. Signs were not wanting of a large-scale campaign for immunization against diphtheria, and it was well to remove any obstacles which might be prejudicial to the general application of such a method. The occurrence of pseudo-reactions in an appreciable proportion of subjects must be regarded as a serious defect in the Schick test; the factor responsible was some constituent of the medium in which the toxin was prepared, not the diphtheria toxin itself. A certain proportion of straight positive reactors, roughly about 25 per cent., showed also severe reactions, with desquamation and blue-violet pigmentation, sometimes lasting for six to nine months. In a smaller proportion there was intense inflammation, followed by the appearance of small blebs or even a large bulla. Either a test toxin too potent for ordinary use was being employed, or certain individuals had an idiosyncrasy. These reactions were more common in adults than in children, and possibly were to be ascribed to an individual susceptibility. He also spoke of the Dick and other tests.

Surgeon Captain SHELDON DUDLEY, R.N., drew an analogy between the pseudo-Schick reaction and the tuberculin intracutaneous reaction. The pseudo-reactions were doubtless caused by some protein in the broth culture. All experience went to show that most pseudo-reactions were due to some products of diphtheria bacilli. The distribution of Schick immunity in a population could be described by the phenomenon of latent immunization by some process involving contact with diphtheria bacilli. The greater the density of diphtheria bacilli in a community the greater the number of carrier infections, and, consequently, the greater rapidity with which the community would become latently immunized. Turning to the tuberculin test, he pointed out that tuberculin reactions increased with the age of the subject or his experience of the tubercle bacillus; skin sensitiveness indicated past or present infection with the tubercle bacillus; tuberculin reactions were more frequent in urban areas; when non-reacting subjects were introduced into community life they quickly became tuberculin-sensitive; skin sensitiveness to tuberculin could be lost or gained in a relatively short time without the exhibition of clinical symptoms; tuberculin reactions might vary in intensity with the severity of the infection and the degree of risk; and, finally, tuberculin, while capable of demonstrating, was unable to stimulate specific bacterial allergy. He pointed out the parallel between the pseudo-Schick reactions and what was observed in the tuberculin test, suggesting that bacterial allergy was shown in both. Dr. E. O. HALLIWELL described certain observations he had been making on the tuberculin reactions among a group of patients suffering from tubercular skin disease, chiefly lupus vulgaris. He had reached results which suggested a specific sensitization at varying levels of the scale, one group of patients reacting both to tuberculin and to a control solution used, and another group reacting only to tuberculin, human or bovine, or both. Dr. W. E. LLOYD said that once a child

had a positive Mantoux reaction it never seemed to lose it, but such a child, even under the age of 5, was a healthy child, and in a group of nearly forty children who were Mantoux-positives not one, on reinvestigation, had been found to develop clinical signs of pulmonary tuberculosis. With ordinary precautions, he could not see that a child with a positive Mantoux reaction stood any greater risk of developing the clinical state.

Dr. V. S. HODSON took up the point regarding the infectivity of tuberculosis among nurses, and the Oslo investigation alluded to by Dr. O'Brien. Many years ago, before modern tests were instituted, it was noted that the Brompton nurses did not suffer to any unusual extent from tuberculosis, although they seemed to be constantly exposed to infection. As to Oslo, anybody who had been in Norway would realize that these nurses, before taking up work in Oslo, had lived practically isolated lives in the hills and valleys of Norway. The severe infection among them was comparable to that found among the Senegalese troops employed on the Rhine by the French during the war. It was a question of virgin soil. The PRESIDENT spoke of the difficulty of identifying a special haemolytic streptococcus in testing for scarlet fever.

THE NEW "BRITISH PHARMACOPOEIA"

At the December meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine the subject for discussion was the new *British Pharmacopoeia*.

Professor F. R. FRASER, chairman of the Clinical Subcommittee of the Pharmacopoeia Commission, said that hitherto the *British Pharmacopoeia* had scarcely been read, and practically not used at all, by the practitioner, for the good reason that it was a book of standards, not of prescriptions. When a therapeutic substance was ordered by a doctor the *Pharmacopoeia* ensured that it was a reliable product and as free from toxicity and impurities as possible. If a substance could not be defined with accuracy it was not included. As it was a book of standards, mixtures and compound powders and the like had, as a rule, been omitted, but a few, which were established by common use over a great many years, had been retained. The trend of modern therapeutics was towards the use of single drugs in a pure state, and as the use of complicated formulae became less, the *Pharmacopoeia* would become more available to the practising physician, who in time to come need hardly ever prescribe a non-pharmacopoeial remedy, unless he was making an investigation into the value of a new substance. It had been possible in the new edition to define with much greater accuracy the physical and chemical constants and characters to which a drug must conform. A national and imperial pharmacopoeia must mirror the therapeutic practice of the time, and in this respect it was interesting to compare the new edition with that of 1914. Two changes seemed to him to indicate the therapeutic advance of the last twenty years. There were many more articles included which were of curative value, and not used merely for symptomatic treatment. Antitoxic serums, vaccines, organic arsenicals, and vitamin preparations found a place for the first time, while insulin, though not strictly curative, might be added to such a list. Quinine was about the only article in the 1914 edition which could be compared with these. There were preparations of bismuth in that edition, but these had been remodelled and regulated with a view to their use by injection for curative purposes. The other great change was designed to meet the demand for therapeutic precision. It was now possible in many cases to obtain active principles in pure chemical forms, so that a standard article was ensured. The principle of biological assay had for the first time been introduced. Serums and other preparations had to be assayed by biological means to compare their activities with those of standard preparations which, for the most part, were defined by international agreement. There were only four curative serums in the new *Pharmacopoeia*: diphtheria antitoxin, tetanus antitoxin, gas gangrene antitoxin, and antidysentery serum. These were preparations which could be standardized, and that was the reason for their inclusion. The substances required for the Schick test and for diphtheria prophylaxis had also been included, and it was likely that before long the similar substances for Dick testing and scarlet fever prophylaxis would be defined and standardized so that their inclusion would be justified. Of the vitamins, vitamin D alone could be obtained in anything approaching a pure form, and a solution of irradiated ergosterol had been included. This solution was standardized in terms of the international unit by comparing the value of the solution in the cure and prophylaxis of rickets produced experimentally in rats with that of the standard preparation. While the *Pharmacopoeia* was in the press, the production of calciferol was announced; had it been announced earlier it would have been included. As cod-liver oil was used for purposes other than the treatment of rickets, and as its value other than the vitamin D it contained was not yet clearly defined, it was not considered justifiable to attempt a D standardization for cod-liver oil; doubtless in a short time the test for cod-liver oil would have to be tightened up. It was hardly necessary to point out the similar arguments which influenced the Commission and had resulted in the inclusion of insulin and posterior lobe extract. Much of the confusion and uncertainty that had attended the prescribing of thyroid would be diminished because now, whichever of several terms were used, one standard preparation would be denoted. A very important further advance had been effected by the standardization of preparations of digitalis. It was not yet possible to obtain the active principles of digitalis in pure chemical form, so that this could not be assayed by a chemical method. The most stable form of digitalis was the dried powdered leaf, and by international agreement a standard for digitalis had been fixed in terms of a standard for digitalis powder, and the unit of activity was one-tenth of a gram of such powder. The *Pharmacopoeia* described digitalis leaf, which must conform to certain specifications, physical and botanical characters, and so on, but it was not standardized. From the digitalis leaf was prepared powdered digitalis, which must be standardized for therapeutic administration, and had the same activity as the international standard powder. The Commission had spent considerable time on digitalis preparations because it understood the need for a preparation suitable for intramuscular injection, but it concluded that no such preparation was yet attainable.

Dr. C. H. HAMPSHIRE, secretary of the Commission, drew attention to some important points on the chemical and pharmaceutical side of the work, and indicated some features of the materials which had been introduced for the first time into the *Pharmacopoeia*. The newly introduced chemical drugs were mostly substances which had been used in medicine for a long time; they were now described authoritatively and characterized by appropriate tests for ensuring their purity and activity. He gave a list of these, with the names by which they had formerly been known, grouped according to therapeutic effect. Touching on anaesthetics, he mentioned that, in addition to a careful revision of the tests to be applied to chloroform, the *Pharmacopoeia* now included a special anaesthetic quality of ether, under the name of aether anaestheticus, which was carefully characterized by stringent tests. Among new pharmaceutical preparations appearing for the first time were a number of injections —bismuth, iron, mercury, calomel, and others—calling for description on account of the complexity of the manner of their preparation. A group of ointments for the eye had been introduced. It was recognized that pharmacists might sometimes receive prescriptions from which the prescriber had omitted the strength, and standards were laid down for the strengths of some of the commoner eye ointments to be used when this was not stated on the prescription; suppositories were dealt with in a similar manner. Concentrated infusions, concentrated aromatic waters, and methylated liniments were now brought under control by inclusion in the *Pharmacopoeia*. Unna's paste, zinc paste, cream of magnesia, and kaolin poultices were among well-known preparations which also found inclusion. He dealt in detail with

the work on ergot, with the changes in the composition of the senna preparations, and with the alteration in the strength of squill and the reason therefor. In nomenclature the names of drugs had been brought into line as far as possible with the international agreement and the *U.S. Pharmacopoeia X*. The doses stated for a number of important drugs had been changed, but it was made clear that doses were not authoritatively enjoined as binding upon prescribers, but were only for general guidance. The only reason for mentioning this to a medical audience was that the *Pharmacopoeia* placed upon the pharmacist or dispenser, when an unusually large dose appeared to have been prescribed, the duty of satisfying himself that the prescriber's intention had been correctly interpreted. It might be that some of the alterations in dosage would lead to prescriptions being referred back by pharmacists because the doses of certain highly potent drugs had been changed. The general increase in the administration of drugs by injection had led to the inclusion of instructions for the sterilization of suitable materials. A special method for the sterilization of oily solutions was described, also an emergency method requiring the use of an aseptic technique and the addition of 0.5 per cent. of phenol or a corresponding proportion of another equally effective antiseptic. It was expected that pharmacists would be ready to carry out the preparation of all sterile materials for injection which might be required by the medical profession, and the directions in the *Pharmacopoeia* would facilitate the adoption of the more accurate method of medication by injection in preference to the mouth.

The PRESIDENT (Dr. E. P. Poulton) said that it was obvious that a tremendous advance was represented by the new *Pharmacopoeia*, which must be absolutely different from anything of the kind that had gone before. It was surprising that the only vitamin included was vitamin D ; no doubt the reasons were convincing, but let the case of vitamin C be considered. Had oranges always a certain amount of vitamin in their juice throughout the year? If so, why not prescribe C in so much orange? He commented also on the absence of silver-salvarsan. With regard to digitalis, the real advance was in what had been done towards the stopping of those special commercial preparations which had held the field, particularly on the Continent.

Dr. GEORGE GRAHAM raised the question of the arrangements made for the next *Pharmacopoeia*. Was the Pharmacopoeia Commission to continue in being for the whole of the ten years? Certainly that would be far preferable to rushed work during the last two or three years preceding publication. With regard to cod-liver oil, it seemed a pity that the *Pharmacopoeia* had not made it possible for all cod-liver oil on the market to be on a similar basis ; as it was, it varied considerably. Dr. DONALD HALL asked whether the new injectio ferri which had been standardized had been used for patients with anaemia and had produced direct results. Dr. DOROTHY HARE pointed out with regard to thyroid preparations that there was a preparation by one firm in which one-fifth of a grain of what was sold as desiccated thyroid corresponded to one grain of the ordinary thyroid extract. Would it mean that in future this preparation would have to be withdrawn in order to conform to the standard? She asked also as to the cost of drugs. Would this not inevitably rise? Ergot, for example, was already an expensive drug, and she imagined that the cost might be considerably increased.

Dr. J. STANLEY WHITE asked why scarlet fever antitoxin had not been included in the *Pharmacopoeia*. Probably it was because there was no international agreement. On the other hand, it was significant that the authorities in Washington had recently fallen into line with the Dicks and had accepted their standard. It had been the attitude of the Biological Committee of the Health Organization of the League of Nations to accept the standard of the country where the work was originally done, and it would be interesting to know why scarlet fever antitoxin, which must rank among the most important of the antitoxins, had been definitely excluded. With regard to prophylactic agents against diphtheria, he was rather surprised to see that the *Pharmacopoeia* included diphtheria toxin-antitoxin. He suggested that that was a preparation which would never be used in this country, even if the present *Pharmacopoeia* lasted a hundred years, for the reason that the Ministry of Health took the view that the toxin-antitoxin was definitely dangerous ; there might be medical men in Canada who would still prefer to use it. As for the test for vitamin A, he thought he was correct in saying that the antimony trichloride test—the " blue " test—according to some recent work, had been found not to run parallel with the spectrographic test, and he ventured to suggest that the latter might have been an improvement.

Mr. A. L. BACHARACH, a member of the Biological Standards Subcommittee of the Commission, took up the president's remark about vitamin C and orange juice, and said that for some reason, which he did not think had ever been published, the Permanent Commission on Biological Standardization of the Health Organization of the League of Nations fixed upon lemon juice as the international standard for vitamin C. The juice of a perfectly well-defined citrous fruit had been accepted as the international standard. It would be asked, therefore, why some freshly expressed fruit juice was not included in the *Pharmacopoeia*. It would perhaps not be too rash to predict that the particular Gordian knot of vitamin C would be cut before a new *Pharmacopoeia* was ready for publication. It had been suggested by the last speaker that the spectrographic test for vitamin A was the best non-biological means of estimating vitamin A in cod-liver oil or any other preparation ; but after a careful study of the subject he thought it was perfectly legitimate to claim that an undisputed cod-liver oil which gave a high " blue " test did contain a high concentration of vitamin A, and a low test a low concentration. That degree of recognition of the specificity of the test might at least have been afforded, if only in recognition of the work of those by whom the test was invented and standardized. It was not strictly correct to say that the " blue " test was not a quantitative measure of vitamin A. The suggestion that spectrographic criteria might have been included in the monograph would probably have been ruled out on practical grounds alone, for very few manufacturing firms, and still fewer individual chemists, could employ the spectrographic method. The effect of biological standardization upon cost needed careful consideration. If it should mean that drugs would cost rather more, at any rate it was satisfactory to know that the drugs would be of use after the higher price had been paid for them. On the question of units in general, he had been in correspondence with a medical officer of health in the Midlands concerning a preparation which the medical officer claimed to contain a definite number of *B.P.* units. In the speaker's view there was no such thing as a *B.P.* unit. The *Pharmacopoeia* was perfectly definite about every unit mentioned. In some cases the units were international, in others national, but confusion would be added to a situation already confused if one began to talk of vitamins or endocrine or other preparations which demanded biological standardization in *B.P.* units at a time when pharmacologists and biochemists were just beginning to settle down to the agreed use of the term " international units " wherever that could be applied. The fact that a unit was recommended by the *British Pharmacopoeia* did not make it a *B.P.* unit.

Dr. PHILIP HAMILL said that it was his privilege to attend almost all the meetings of the Commission, and he could say, what perhaps the two openers could not so well say, what a tremendous amount of work was carried through. When one realized the necessity for extreme accuracy in all the monographs, which might be the subject of legal proceedings, one's sympathies should be with Dr. Hampshire and the members of the Editorial Committee. It might be of interest historically to say that the question of biological standardization was very earnestly considered when the 1914 *Pharmacopoeia* was being prepared. The General Medical Council at that time, however, would not insert any biological standards for digitalis and so forth until units had been defined,

and until there was an independent laboratory such as now existed under the Medical Research Council. The omission from the 1914 *Pharmacopoeia* of ill-designed biological standards was a very sound piece of policy. With regard to injectio ferri, on which a question had been asked, that was carefully worked out, and many of them had tried it and not been dissatisfied therewith. As for cost, he believed the tendency would be to make the drug less expensive. The liquid extract of liver now in the *Pharmacopoeia* would cost little more than half the dry liver extract, and it was a palatable extract and effective. Mr. R. R. BENNETT, pharmaceutical member of the Commission, said that practically all the drugs which were now official could be provided by the British manufacturer. Many of the additions to the *Pharmacopoeia* provided the physician with British-made substitutes for proprietary preparations of foreign origin. With regard to cost, he agreed with the last speaker that there was a tendency for cost to fall rather than to rise. He could not think of any instance in which the new standard set by the *Pharmacopoeia* had, in fact, imposed hardship on the purchaser of any particular drug. The *Pharmacopoeia* had been accepted by pharmacists with a good deal of satisfaction, and the whole profession of pharmacy had appreciated the fact that the General Medical Council had recognized its help in the production of this *Pharmacopoeia* more than ever before. Dr. J. H. GADDUM said that the spectrographic test for vitamin A was little, if at all, more accurate than the antimony trichloride (" blue ") test. He noticed that the extract of pituitary was sterilized by autoclave for half an hour. That would be liable, he thought, at 115° F., to destroy about 20 per cent. of its own activity.

Dr. HAMPSHIRE, in reply to Mr. Bacharach, pointed out that the *British Pharmacopoeia* was a standard under the Foods and Drugs and other Acts, and the question was bound constantly to crop up, " Is this, or that, *B.P.*? " The initials " *B.P.* " formed a basis of trade in that way. Professor FRASER, also in reply, said that it had been strange to hear criticisms voiced at that meeting, because those very criticisms turned on points which the Commission had discussed for many hours. To take a few points, they were informed by expert opinion that sterilization by heat did not destroy the potency of pituitary extract. They would welcome the isolation of vitamins in chemically pure substances, and to hear that this would shortly be possible in the case of vitamin C was excellent news. Vitamin C was not given as such in the *Pharmacopoeia*, because there was as yet no recognized method of standardizing it. As to whether injectio ferri had therapeutic value, they were advised from all sides by physicians that it had value, and so it was decided to put in a preparation which would give a doctor a clue as to what such an injection had to be. With regard to Dr. Graham's point, it was the Commission's belief that some body ought to remain in session until the next *Pharmacopoeia*, and not only that, but that there ought to be research laboratories. The Commission, however, could only minute its views ; it could not make decisions. It was also of opinion that addenda ought to be issued from time to time to keep up with therapeutic progress.

BACKACHE

At a meeting of the North of England Obstetrical and Gynaecological Society, held at Sheffield on November 25th, Mr. CARLTON OLDFIELD (Leeds) read a paper entitled " Backache: Is it medical, surgical, or gynaecological? "

After alluding to the infrequency of an adequate consideration of this symptom in any textbook, Mr. Oldfield referred to three important points about this condition : (1) the frequency with which it occurred—he had found it in 60 per cent. of his cases ; (2) the fact that backache was usually only one of several complaints ; and (3) that in many cases there were no abnormal physical signs, such as tenderness over the spine or the presence of disease of the spine as revealed by radiological examination. Mr. Oldfield gave a comprehensive list of the many non-gynaecological causes for the condition—for example, it occurred in rheumatic, toxic, or constipated cases, or those in which the voluntary or sympathetic nerve supply was affected. In a different category were the patients who gave a history of an accident or of recent operation or confinement. In these instances such conditions as subluxation or sprain of the sacro-iliac joint might be met with. The chief gynaecological causes were backward displacement of the uterus and prolapse of uterus or of the pelvic floor. Cervical conditions such as erosion were very rarely causative factors.

Mr. J. R. RATCLIFFE (Derby) spoke of the many patients with backache in whom no gynaecological lesion could be found. Even when such a lesion occurred, removal of the condition did not cure the symptom. In some cases the symptom could be traced back to an operation, but Mr. Ratcliffe believed that the commonest cause was a combination of faulty posture and chronic strain, possibly aggravated by focal sepsis. Manipulation and exercises would often result in a cure, except in stout women. In these cases manipulation was difficult, but exercises and a support often gave relief. Many superficial conditions such as fibrositis had to be eliminated in diagnosis before one gave such treatment as was directed only to backache due to faults in the spine. Mr. Ratcliffe considered subluxation of the sacro-iliac joints to be rare. He refused to give orthopaedic treatment until all abnormal gynaecological conditions had been corrected.

Cases and Specimens

Dr. J. W. BRIDE (Manchester) described a case of procidentia with rectal prolapse in a widow aged 69. He also showed a specimen consisting of placenta, membranes, and the umbilical cord, in which there was a true knot. In the patient's third pregnancy progress was normal until the thirty-eighth week, when she had abdominal pain and uterine contractions were felt. There had also been no movements for twenty-four hours and the foetal heart was not audible. Six days later she went into labour, and a 6½-lb. foetus was delivered naturally, the cord being twice round the child's neck. The baby had apparently been dead for a few days and the knot seemed to have been the cause of death.

Mr. J. CHISHOLM (Sheffield) described a case of Krukenberg tumours of the ovaries occurring in a married woman aged 33, the primary growth being in the stomach. Secondary growth was also found in the bone marrow from the upper half of the right humerus, where there was mucoid degeneration.

Professor D. DOUGAL (Manchester) showed three specimens of granulosa cell tumours of the ovary. Two of the patients were respectively seven and twenty-seven years past a normal menopause. The first had noticed slight uterine bleeding for two months, and was found to have a tumour of the right ovary which was of the size of a foetal head, was partly cystic, and was a typical folliculoma ; the left ovary contained a simple fibroma, and the uterus a large adenomatous polyp. The second specimen consisted of a small solid tumour of the right ovary, but the patient's symptoms were due to a very large pseudo-mucinous cyst of the left ovary. The third specimen consisted of a solid tumour of the size of a hen's egg, arising in the left ovary, but distinct from the remainder of the ovary. The patient was 44 years of age, and complained of epimenorrhagia and a feeling of pressure on the rectum when walking, this latter symptom being due to the presence of the tumour in the pouch of Douglas.

Dr. C. P. BRENTNALL (Manchester) showed a suppurating fibroid removed, with the corpus uteri, four months after an abortion. At operation the uterus reached to the umbilicus and there were no peritoneal adhesions. A deep incision into the tumour in the uterus resulted in a spurt of yellow pus, and owing to doubt as to whether this was sterile myomectomy was not performed. The sequence of events appeared to be: (1) red degeneration during pregnancy, (2) cystic change in the necrotic area, and (3) infection occurring during abortion. Dr. Brentnall considered that this specimen afforded an additional argument in favour of myomectomy during pregnancy.

Reviews

INVESTIGATION OF A POLIOMYELITIS EPIDEMIC

At the present time, when considerable attention is focused upon the occurrence of poliomyelitis in this country, it is of interest to have at our disposal an English translation of the Report of the Swedish Commission on Epidemic Infantile Paralysis[1] made to the Fifteenth International Congress on Hygiene and Demography at Washington in 1912. Though twenty years have passed since its publication, this report remains a landmark in the investigation of the problem, and is a model of the application of the scientific method to clinical medicine which might well be followed by all those engaged upon the study of epidemic disease. Throughout the work the component investigations are presented in logical sequence. The clinical abstracts and pathological data are presented in a concise and readable form, and at the end of each section the results are summarized before the next step is embarked upon.

The research is the work of Kling, Pettersson, Wernstedt, and Josephson ; the material, the extensive epidemic which occurred in Sweden in 1911. The field was a particularly rich one, but it can seldom have fallen to the lot of medical investigators to reap so rich a harvest from their labours and to be able to present so finished a report at the end of a year's work. The scope of their investigation was to establish the sites in which the poliomyelitis virus was to be found in victims of the disease, in abortive cases, and in carriers, and its manner of transmission in man. For this purpose they used inoculation experiments in monkeys, and in all cases control inoculations were made from animals dying of the disease to another monkey. At the time the work was undertaken the researches of Landsteiner, Levaditi, Lewis, and Flexner had recently been published, and it was known that the disease was caused by a filterable virus which had been shown to exist in the nervous system, in the tonsils and pharyngeal mucosa of men, and in the nasal mucosa, salivary glands and some lymph glands of monkeys and occasionally in the blood, but it had never been demonstrated in the secretions from the nose, mouth, or pharynx, or in the intestinal mucosa.

The first step was the investigation of the infectivity of the filtered secretions from the nose, trachea, and intestine of persons dead of the disease. In fourteen cases thus investigated a positive result was obtained in 78 per cent. Similar experiments were then carried on with material obtained from living sufferers, and in only one case out of the twelve investigated were the results negative. It was concluded that in the acute stages of the disease the virus was always present in the secretions of the mouth, nose, pharynx, and intestine. Attention was then turned to persons showing abortive symptoms of the disease without paralysis, to healthy known contacts, and to non-contacts in districts in which poliomyelitis was epidemic. In all these a large number of positive results were obtained, showing that the virus is present in many persons who never show any paralysis and who may be in normal health, and that the carriers greatly exceed in number the clinically positive cases. The persistence of the active virus after the acute illness was studied, and it was found to persist as long as six months, but in gradually decreasing virulence. Attempts to prove the possibility of transmission by inanimate objects such as books, needlework, and handkerchiefs were positive, but no evidence was obtained of the virus being transmitted by flies. The conclusion was reached that the disease is conveyed by droplet infection from one individual to another—chiefly by means of carriers—attention being drawn to the great rarity of direct case-to-case infection in institutions. The authors foresee a time when it will be found that poliomyelitis is a common disease of childhood, generally only displaying slight symptoms, but occasionally acquiring a more virulent character, giving rise to disturbances in the nervous system.

The remainder of the report is devoted to the pathology of experimental poliomyelitis in monkeys and to the topography of the epidemic investigated. From the latter it emerges clearly that those districts chiefly involved in the 1905 epidemic were the ones spared in the 1911 outbreak, illustrating in a striking manner the difference of the disease when incident upon a seasoned and a virgin community.

[1] *Investigations on Epidemic Infantile Paralysis.* Report from the State Medical Institute of Sweden to the Fifteenth International Congress of Hygiene and Demography, Washington, 1912. Stockholm: Nordiska Bokhandeln. 1932. (Pp. 271.)

ANKYLOSTOMIASIS

In writing a book on hookworm disease[2] Colonel Clayton Lane has performed a useful service. The three species of ankylostoma which infest man probably share with the malaria organisms and streptococci the privilege of being the most important human parasites in the world, not so much perhaps as killing agencies, but as producing a vast deterioration of health, activity, and character. Colonel Lane presents a clear and orderly survey of the voluminous literature, and throughout the book adds facts and comments based on his own personal experience in India and, lately, in London. The whole makes a most interesting and readable tale, and leaves the reader in no doubt about the opinions of the author and the data on which they are based. The parasites and their life-histories, human infection, pathology (the weakest section), diagnosis, symptoms, treatment, and prevention are dealt with successively. The author, who is best known for his careful experiments on the technique of finding the eggs in faeces, gives here a full description of his flotation method, and describes the evidence which seems to make it certain that it is the most accurate and delicate process known. He does not subscribe to the distinction which is often made between "ankylostome infection" and "ankylostomiasis." Some infected people have few worms, others have few symptoms, but even the slightest infection is harmful, individually or socially, and deserves careful diagnosis and treatment. Colonel Lane makes an earnest plea at the end of the book that "herd" treatment should be replaced by such attention to each case as a medical man would like to have for himself. He thinks that carbon tetrachloride, which has been very popular in recent years, should be given up as too dangerous in doses which are effective, and should be replaced by finely powdered or precipitated thymol.

The modern interest in ankylostoma is based on Stiles's rediscovery of the worm in the southern United States, Ashford's identification of it in 1899 as the cause of much misery in Porto Rico, its discovery in German, Belgian, and Cornish mines about 1900, and the Rockefeller Sanitary Commission, which began work in 1910. It is now theoretically possible to stamp out the disease, and since faeces are easier to control than mosquitos it may be more practicable to do so than it has been with malaria. In the study of both diseases most of the work has been

[2] *Hookworm Infection.* By Clayton Lane, M.D.Lond., Lieut.-Colonel I.M.S. (ret.). Oxford Medical Publications. London: H. Milford, Oxford University Press. 1932. (Pp. xiv + 319 ; 36 figures. 25s. net.)

concerned with immediate practical ends; of their intimate pathology and immunology we know but little, and it would be of great interest to know more. The nature of the anaemia of ankylostomiasis, or of the substance which stimulates the bone marrow to an eosinophil reaction, has never been satisfactorily determined. We do not know whether all the ill effects are due to anaemia, or whether some poisoning influence is present as well.

DIET AND SKIN DISEASES

For many years physicians have been in the habit of emphasizing the importance of diet in the treatment of diseases of the skin, but it is only quite recently that any real effort has been made to find a scientific basis for the various restrictions that have been prescribed by dermatologists for their patients. *Skin Diseases and Nutrition*,[3] by Dr. E. URBACH, is an attempt to describe the various researches that have been made on the subject, with directions for their clinical application. It is an extremely complicated subject, and up to the present time there are only very few skin diseases, such as scurvy and pellagra, which can be definitely controlled by dietetic measures. On the other hand, the influence of diet on eczema, the commonest and most important of all the dermatoses, although undoubted, is extremely difficult to trace. Dr. Urbach has attempted in the present volume to follow up the work of Luithlen on the subject, and to introduce a certain amount of order into chaos. He has tried to classify the different varieties of dietetic sensitiveness, and he has evolved a method of treatment consisting chiefly in the administration of "propeptans." These bodies are peptones derived from the various articles of diet to which patients suffering from different dermatoses are commonly sensitive, and by the administration of propeptans three-quarters of an hour before each meal it is claimed that successful therapeutic results are obtained. It is not possible here to go into details as to the practical application of this principle. The difficulties are considerable, and every case calls for prolonged and accurate investigation. Although we are not yet convinced that Dr. Urbach has proved his case, nevertheless his book is well worth reading by all those who are interested in the problems of nutrition and the treatment of skin diseases. Incidentally, it may be mentioned that Dr. Urbach is a strong supporter of the dietetic method of treating lupus vulgaris as advocated by Jesionek and others.

HISTORY OF MEDICINE IN QUEBEC

We welcome the appearance of the *History of Medicine in Quebec*,[4] by Dr. MAUDE E. ABBOTT, who is well known in this country as the leading authority on congenital diseases of the heart and is the editor of the Osler Memorial Volume. The work (which has been reprinted with additions from *The Storied Province of Quebec*) deals with the history of medicine in Quebec from its discovery by Jacques Cartier in 1535 down to the present time. A sketch of primitive medicine among the aborigines is followed by an account of the outbreak of scurvy among the first French settlers during the period 1535–1608, and a graphic description of the foreign physicians, barber-surgeons, apothecaries, midwives, and charlatans who crossed the Atlantic when Quebec became a French colony in 1667. Outstanding among these were Robert Giffard, the first physician to the Hôtel-Dieu of Quebec; Jean Martinet, notable for his medico-legal activities at Montreal; and Michel Sarrazin (1685–1735), who not only took an active part in combating the epidemics of typhus, influenza, small-pox, and yellow fever, but was also eminent for his botanical studies, which enabled him to enlarge his practical knowledge of local remedies and his zoological observations of the fauna of Canada. The most distinguished of Sarrazin's successors was Jean François Gaultier, who, like him, was a corresponding member of the Académie Royale des Sciences, and gave his name to several plants, notably the *Gaultheria procumbens* (wintergreen). In the early nineteenth century the principal medical men in Quebec were F. Xavier Tessier, the editor of the first medical journal published in Canada, the *Journal de Médecine de Québec*, and Dr. James Douglas, who was not only a distinguished surgeon and active in medical education and public health, but was also a pioneer in the humane treatment of the insane. Subsequent pages deal with the hospitals and medical schools of Quebec, outstanding personalities in the later part of the nineteenth century, among whom Osler was the chief, the Canadian National Committee for Mental Hygiene, and other public health activities in Quebec. The text is accompanied by illustrations of the Quebec hospitals and portraits of eminent physicians connected with the Province. A bibliography of sixty-one references is appended. Dr. Abbott is to be congratulated on having made a valuable and remarkably readable contribution to the medical history of the Empire.

VETERINARY PATHOLOGY AND BACTERIOLOGY

One of the serious gaps in the literature of veterinary science has been filled by the publication of *Veterinary Pathology and Bacteriology*,[5] by GAIGER and DAVIES. Hitherto the English student has had to rely almost entirely on lecture notes, with an occasional reference to a few English translations of foreign textbooks. He is for the first time now provided with a concise, clearly written handbook specially prepared for his own needs and for his own examinations. At the same time the authors express the hope that the volume will not be without its value to the practitioner and the veterinary officer of health in their everyday work. The book is divided into three parts and an appendix. Part I deals with general pathology, Part II with causal organisms and their pathogenesis, and Part III with the special pathology of the various organs. The appendix deals with methods and technique. Pathology has been treated from the veterinary point of view as far as possible, but human analogous conditions do on occasion come under notice. The book is an excellent teaching manual, but its usefulness in general is limited somewhat by the fact that the scope of the examinations for which it prepares demands a wide, somewhat superficial acquaintance with diseased conditions, rather than a deep intimate knowledge of the processes of disease. Until that fault in the system is made good (and it is not confined to veterinary medicine, by any means) all such textbooks must be content to cover a wide field in a shallow manner. Apart from this defect, due to circumstances over which the authors have little control, the volume is to be highly recommended, not only to all veterinarians, but also to medical men who find the comparative method a useful instrument in their own work.

[3] *Skin Diseases and Nutrition*. By Erich Urbach, M.D. Translated by F. R. Schmidt, M.D. Vienna: Wilhelm Maudrich. 1932. (Pp. 242; 55 figures. 7 dollars.)

[4] *History of Medicine in the Province of Quebec*. By Maude E. Abbott, B.A., M.D. 1931. Montreal: McGill University. (Pp. 97; 41 figures. 15s.)

[5] *Veterinary Pathology and Bacteriology*. By S. A. Gaiger, F.R.C.V.S., and G. D. Davies, M.V.Sc., M.R.C.V.S., D.V.H. London: Baillière, Tindall and Cox. 1932. (Pp. viii + 610; 194 figures. 25s. net.)

Notes on Books

The *Proceedings*[6] of the second annual conference of the International Association for Preventive Paediatrics have been promptly issued following the meetings in Geneva in September. Under the presidency of Professor J. Taillens of Lausanne two subjects were discussed. The prophylaxis and treatment of syphilis in children of parents known to be syphilitic formed the subject for the first day's proceedings, and Dr. D. Nabarro of London followed Professor E. Lesné of Paris in opening the discussion. The next day's meeting was devoted to the question of the prophylaxis of neurosis in childhood, opened by Professor F. Hamburger of Vienna. The final resolutions included the statement that the problem was primarily an educational one, and that education was primarily a familial concern rather than institutional. It was urged that children's specialists should be taught the principles of educational science. The next meeting is to be held in London, probably in close association with the International Paediatric Congress, which is meeting in July, 1933.

The Early Diagnosis of the Acute Abdomen,[7] by Mr. ZACHARY COPE, has now reached its sixth edition. Minor alterations have been made, but no changes have been found necessary in the commendably wide outlook of the book or in its make-up. The popularity that has already been won by this practical book is largely due to the clear way in which the various topics are set out and discussed. It is a very handy companion for use in emergencies where quick decisions are essential.

That the volume on Diseases of the Blood and Blood-forming Organs by Drs. P. EMILE WEIL and MARCEL BLOCH and of the Kidneys by Professor Pasteur VALLERY-RADOT,[8] in the Précis de Pathologie Médicale series, has now reached a third edition is satisfactory proof that it meets a definite demand. The three colour plates dealing with the blood cells are good, but all the black-and-white figures are not so attractive. Professor Pasteur Vallery-Radot has entirely rewritten the account of the pathology of the kidneys.

[6] *Compte Rendu de la Deuxième Conférence Genève.* Association Internationale de Pédiatrie Préventive. Genève: Union Internationale Secours aux Enfants. 1932. (Pp. 101.)

[7] *The Early Diagnosis of the Acute Abdomen.* By Zachary Cope, B.A., M.D., F.R.C.S. Sixth edition. London: Humphrey Milford, Oxford University Press. 1932. (Pp. 248; 30 figures. 10s. 6d. net.)

[8] *Maladies du Sang et des Organes Hématopoïétiques.* Par P. Émile Weil. *Maladies des Reins.* Par Pasteur Vallery-Radot. Troisième édition, revue. Précis de Pathologie Médicale, tome v. Paris: Masson et Cie. 1932. (Pp. 780; 96 figures. Broché, 55 fr.; relié toile, 70 fr.)

Preparations and Appliances

A POCKET PERCUSSOR

Dr. WATSON SMITH (Bournemouth) writes:

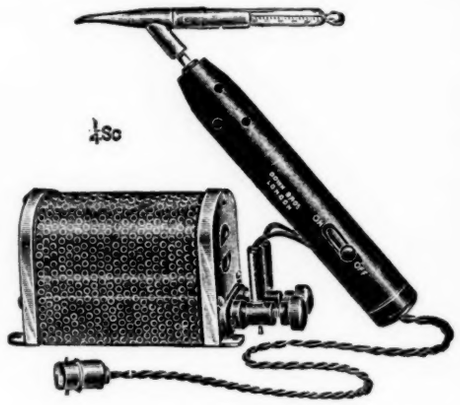
Messrs. Allen and Hanburys Ltd. have recently made for me a neat percussor as illustrated. This can be carried in the waistcoat pocket; it measures exactly 5 inches in length, and has a nickel-plated metal acorn-shaped head 1 inch long by 1/2 inch broad at its middle. One end of the acorn is rather

more rounded than the other. The handle is of whalebone, with tapering butt. Although light, the weight of the head alone is sufficient in use. Most percussors made hitherto have been too large and clumsy, and not readily available when most needed; their large size and rubber attachments rather invite roughness in use.

METRI-CAUTERY FOR INFECTED CORNEAL ULCERS

Dr. A. CHRISTIE REID (Nottingham) writes:

The instrument shown in the accompanying figure, made for me by Messrs. Down Bros., is an improvement on the design of Professor Wessely, and has proved invaluable (*a*) in arresting septic corneal ulcers that have not yet developed hypopyon; (*b*) in checking the progress of severe hypopyon ulcers and leaving, even in advanced cases, a very moderate



scarring, allowing sometimes a most surprising degree of vision.

The point should be heated from the main electric supply till the thermometer registers 70° C.; it should not be applied over 85° C. A gentle stroking of the surface of the ulcer for a few seconds usually suffices. The process may be repeated later if any fresh advance is noted, but then, as a rule, only to the advancing edge.

The instrument has proved in my hands much less damaging than the actual cautery, even at a dull red heat and by the "approach" method—that is, not touching.

CORAMINE

Coramine-Ciba (Clayton Aniline Company, Ltd.) is a preparation of pyridine-β-carbonic acid diethylamide. This drug has a stimulant action on the central nervous system, and is recommended as a circulatory and respiratory stimulant. It can be given orally, hypodermically, intramuscularly, or intravenously. It has been found of value not only for the treatment of collapse, but also in other conditions, such as the treatment of poisoning by narcotics. One special use for it which has recently been employed is the counteraction of avertin anaesthesia in patients in whom the drug produced undesirable depression of the respiration and blood pressure. The drug is supplied in ampoules containing a 25 per cent. aqueous solution for intravenous injection.

Another compound, "Calcio-coramine," which is a double salt of pyridine-β-carbonic acid diethylamide and calcium sulphocyanate is put up in tablets of 0.4 gram for oral administration. It is recommended as a potent cardiac and respiratory stimulant.

RESYL

"Resyl-Ciba" is recommended for the treatment of respiratory diseases. It is a soluble glycero-guaiacol ether which is broken down in the body and excreted partly as a sulphate and partly combined with glycuronic acid. The makers (Clayton Aniline Company, Ltd.) claim that it has an anti-catarrhal and antiseptic action on the respiratory tract and reduces expectoration. It is prepared in ampoules, which contain 0.12 gram of the drug, and are intended for intramuscular injection.

GOAT'S MILK POWDER

Caprolac is a preparation of goat's milk powder issued by Cow and Gate Ltd. The milk is modified by the addition of lactose and partial elimination of fat, and is then dried by a special roller process. This milk is specially indicated in allergic conditions in infancy in which cow's milk, or even breast milk, is not well tolerated. The makers claim that the preparation has a rich vitamin content, and is free from all pathogenic organisms.

Corrigendum

In the paragraph describing Messrs. Lever Brothers' concentrate of vitamin A "Essogen" (December 3rd, p. 1018) the price quoted should read "36s. for a bottle of 500 capsules."

THERAPEUTIC PROBLEMS OF THE FUTURE

HARRISON LECTURE BY SIR HENRY DALE

On December 13th Sir Henry Dale delivered the Harrison Memorial Lecture to the Pharmaceutical Society of Great Britain, his subject being "Therapeutic problems of the future." At the close the president, Mr. Gladstone Hines, presented to him the medal commemorating the late Colonel Edward Harrison, whose work was the subject of an annotation in our issue of December 10th (p. 1068).

Sir Henry Dale, after paying a tribute to Harrison's achievements in war and peace, addressed himself to some of the remarkable changes which were transforming the whole aspect of therapeutics, and which called for a new adaptation on the part of pharmacy. Some of the old-fashioned vegetable drugs would remain; the value and reputation of certain of them might even be enhanced. In the treatment of malaria and amoebic dysentery, for example, nothing had yet been found which could certainly replace the alkaloids extracted from cinchona and ipecacuanha. But while drugs such as these, with recognizable and specific actions on identifiable causes of disease, would doubtless retain their position for some time to come, a great proportion of the drugs of more vague action in the relief of symptoms were doomed. The future would surely see a clearer distinction between remedies acting in relief of symptoms or by stimulating natural bodily functions to a higher activity, and those which specifically suppressed an infection, arrested its progress, or directly neutralized the morbific products of the invading organisms.

SYMPTOMATIC TREATMENT

Taking the drugs which were given for the relief of painful or unpleasant symptoms, or to raise a lagging natural function to normal activity or a normal one to temporary beneficial excess, Sir Henry Dale said that it was curious to reflect how nearly exclusive a part in therapeutics was played by medicaments of this class only thirty or forty years ago. Excluding cinchona and ipecacuanha, already mentioned, and the use of mercury and iodides in syphilis, practically every other drug then at the physician's disposal aimed at the relief of symptoms rather than the eradication of their cause. The new *British Pharmacopoeia* had already done a great work of elimination, balancing it by the introduction of newer remedies, and by instructions which should lead to a more scientific preparation and therefore a more exact use of some of those which remained. But the *Pharmacopoeia* could only codify what had been definitely accepted, and must present a conservative record of change. Change in practice must always be in advance of pharmacopoeial record. In some directions, notably in the production of anaesthetics, hypnotics, and analgesics, it had given to medicine resources superior to any which the old pharmacy could provide. But, on the whole, he thought that in relation to the immense expenditure of money and brains on the search by chemical synthesis for better remedies for the relief of symptoms, the results, in efficiency of medical treatment and for the health and happiness of mankind, had been discouragingly small.

Some of the old remedies could still make a strong claim. Nobody had found an artificial drug which could really replace digitalis, the traditional purgatives, or ergot. Even supposing that synthetic chemistry went much further than its present promise in finding substances for artificial relief and correction of symptoms, and that the synthetic laboratory yielded purgatives, hypnotics, diuretics, ecbolics, and the rest better than any as yet existing, he thought there would still be a deeper reason for dissatisfaction. Nothing was more certain than the gradual awakening of medicine to the fact that its real aim should be, not the palliation of the results of ill-health, but the preservation of health to forestall them. He took as an example the laxatives, aperients, and purgatives. It might be thought that the period in which therapeutics largely alternated between purgation and bleeding on the one hand, and building up with tonics and roborants on the other, had long since passed away, but the attitude of mind which regarded the regular use of aperient drugs as the normal need of a large proportion of civilized people had by no means disappeared. On the other hand, there was a growing body of opinion which regarded this prevalent need of an unnatural stimulant to the discharge of a physiological function as a reproach to medicine and to its care of the public health. For the time being this might mean for pharmacy little more than the transfer of attention from small bulks of intestinal irritants to large bulks of indigestible oils and jellies. But if the conditions of civilized life required any such artificial aids to a natural function, there would be no satisfaction until it was known what was wrong with civilization.

IDENTIFICATION OF THE VITAMINS

The scientific study of the qualitative factors of a satisfactory diet had only started during recent years, but the significance of the vitamins had been rapidly revealed. It could now be said that pure vitamin D or calciferol had been prepared, identified, and isolated in a state of purity. Already means for its preparation in indefinitely large quantities were available, and it had passed into the stage of expert pharmaceutical manufacture. The vitamin C also had now with great probability been identified as a peculiar glycuronic acid, and if this identification were made certain there was every reason to believe that methods would be devised for obtaining this substance also on a large scale. But the identification of these substances had not arisen from pharmaceutical investigation in the ordinary sense. They were not active principles of drugs used for the alleviation of symptoms, but constituents of normal unsophisticated foods. Their adequate presence in the diet would prevent the symptoms from appearing, and their remedial administration would remove the cause instead of artificially modifying the result. Was it too much to hope that research on the necessary constituents of an adequate and healthy diet would eventually expose the roots of the alimentary disorders which figured so largely in the persistent defects of health in an industrial civilization? If such a hope could be realized our successors might find themselves no longer dependent, for the normal functioning of their apparatus of digestion and elimination, on recourse to the artificial aid of drugs and chemicals.

The lecturer next considered the change which had been produced in the aspect of therapeutics by a recognition of the functions of the endocrine glands. The chief danger to progress in this direction might well be excessive eagerness, leading to empirical administration of extracts of unknown potency. But sooner or later a fuller knowledge would enable the facts of minor endocrine deficiencies to be clearly recognized, and then over a much wider field it would become possible to deal with causes by natural replacement or prevention, where at present only the unnatural palliation of symptoms was attempted.

These changes in the direction of therapeutic aim must have profound reactions on pharmacy. He did not suppose for a moment that symptomatic treatment would disappear. The doctor's immediate duty, and the patient's immediate anxiety, would continue to be centred on the relief of symptoms before treatment could be directed to the removal of their cause. But symptomatic treatment would progressively lose its former predominance.

Pharmacy would have to qualify itself for new tasks, as medicine found new and more rational methods. Indeed, if medicine should ever achieve its proper aim in the extinction of therapeutics by a rational prevention, pharmacy, the handmaid of therapeutics, must, he supposed, be prepared to die in a common sacrifice ; but he did not think that they need look forward, with either hope or fear, to such perfect consummation.

BACTERIAL DISEASES

Turning to the tendency of therapeutics in dealing with diseases due, not to lack of substances needed for normal healthy function, but to harmful invasion from without—in other words, to diseases due to infections or poisons—Sir Henry Dale said that nobody would wish to talk about the treatment of an infection which could be prevented by removing its means of access to the body. It was not likely that pharmacy would be called upon for a treatment for typhus, for example, since its complete prevention was within the power of an efficient hygiene. Several of the great life-destroying plagues had been banished by a primary prevention. In the case of infections due to bacteria, he thought it must be recognized that treatment by drugs and unnatural chemical agents had a gloomy record of almost complete failure, although relief of resulting symptoms might be given as before. Nobody had yet discovered an artificial substance which would directly and effectively stop the progress of a bacterial infection in the living body when given in doses which the body could tolerate. For practical purposes, in the direct treatment of infections due to bacteria, we were still thrown back on reinforcement of the defences which the body itself produced against the invading organisms and their poisons. The immunological remedies formed a group of substances entirely different from any which the older pharmacy contemplated, but the new *Pharmacopoeia* included an important series of them, and the next *Pharmacopoeia* could hardly fail to extend the list of what he called Nature's own antidotes.

PROTOZOAL DISEASES

Passing from infections by ordinary bacteria to diseases caused by spirochaetes or by the true parasitic protozoa, he said that in none of the diseases of this group had prevention yet achieved more than a local and limited success. It was true that, where the necessary organization had been available for intensive and continued treatment of the breeding places of the mosquito, as in the Panama, the incidence of mosquito-borne disease might certainly be reduced to a minimum. The extent to which such ideal preventive measures had fallen short of general success, however, was shown by the fact that malaria still remained the greatest of the world's hygienic problems. Much the same could be said of sleeping sickness. Something had been effected in controlling the spread of the trypanosome, and thus limiting the danger, but the disease remained and the call for treatment was urgent. It was so with syphilis, relapsing fever, and tropical dysentery. It might be hoped that prevention would one day become effective, but meanwhile, in face of the present imperfections and limited success of prevention, the problem of treatment remained. It was in these spirochaetal and protozoal diseases, for which Nature provided at best a feeble defence of acquired immunity, that the quest for new artificial remedies, attacking the root of the trouble by killing the invading parasites, or stopping their further propagation, had achieved its most brilliant success. He instanced the transformation effected in the treatment of syphilis and relapsing fever by Ehrlich's systematic search for a remedy dealing with the infecting organisms, with the resulting discovery of salvarsan ; also the treatment of African sleeping sickness by tryparsamide on the one hand, and germanin—a complex substituted urea—on the other. Kala-azar, again, had proved unexpectedly amenable to treatment with relatively simple compounds of antimony. In the case of malaria two new substances of definite value, plasmoquine and atebrin, had been brought into use. It was too early to suggest that something better than quinine had yet been found, but the position had so far radically changed that methods by which experimental progress might be made had been worked out and would be improved with further study. We were no longer left with the depressing conclusion that Nature, in evolving the cinchona alkaloids, had already achieved the imperfect best in this direction, and had closed the chapter of therapeutic possibilities for this murderous and crippling disease.

ULTRA-MICROSCOPIC VIRUSES

Finally, the lecturer mentioned as a practically untouched problem for the future the group of infective diseases in which the causal agents were ultra-microscopic viruses, almost on the borderline between unorganized toxic principles and organized living beings. He mentioned some of the difficulties which experimental study of the viruses presented. No artificial medium had yet been found in which they could be made to grow and multiply. Yet to such viruses, so peculiarly inaccessible to investigation by ordinary methods, were due some of the most widely spread diseases of man, animals, and plants. Modification of the virulence of the virus in various ways, or the use of serum from an individual who had acquired an active immunity, had enabled prevention to be applied successfully in several cases, and even curative treatment to a minor extent, and no doubt further progress would be made along these lines. For the artificial treatment of these common diseases—which included small-pox, chicken-pox, measles, whooping-cough, influenza, and the common cold—by drugs and chemical substances, there was no scientific basis or definite record of practical achievement. It had long been a reproach to medicine that it had been almost powerless to do anything for the children attacked by such common infections, except to isolate the victims in an effort to limit the spread of the epidemic, and to apply a purely palliative treatment to their symptoms.

What would chemistry and pharmacy be able to offer in future in the way of specific agents which could cut short an attack of any of these diseases? From what was actually known at present the outlook was anything but hopeful. Chemotherapy showed much achievement and more promise for the effective treatment of infections by the relatively complex organisms of the protozoa, but nothing as yet of either for the treatment of infections by simpler bacteria. It seemed remotely improbable that along similar lines of investigation substances would be found directly to attack the still more elementary viruses. But he thought that comfort might be derived from the fact that the nineteenth century was already nearing its close before the transmission of malaria by a mosquito was demonstrated ; that the present century was well begun before it was known that African sleeping sickness was due to a trypanosome ; that the discovery of the spirochaete of syphilis came some years later still ; and that the elucidation of salvarsan, the first great achievement of chemotherapeutic research, dated back only twenty years. The present period was one of rapid progress in the study of the viruses. The mists that had hidden them were breaking and dispersing, and the prospect was beginning to take form and detail. Who could say that, from this new vision of our enemies, the fire of some imaginative genius might not kindle, for the forging of weapons of a type yet unforeseen, to give victory at last on yet another front in the battle for life and health!

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SATURDAY, DECEMBER 24th, 1932

NURSING IN THE BUSH

The Victorian Bush Nursing Association is one of the most interesting public health movements of recent times. About 1908 the Countess of Dudley, wife of the then Governor-General of Australia, noticed that the inhabitants of the enormous country districts of Victoria had no trained nurses and needed them badly. When the scheme to provide them was first proposed, the medical profession objected because it feared competition, the nurses were openly hostile, and the public was afraid that it would be called upon to maintain yet another charity. The history of how this formidable opposition was overcome and how the present large and effective organization grew up is vividly told by the honorary secretary, Sir James Barrett, in an article reprinted by the association from an American nursing journal. The first funds were raised by a concert given by Dame Nellie Melba. This produced £2,500, which was divided between Victoria and New South Wales. It was decided from the beginning that the movement must be a co-operative one, and that the districts employing nurses must pay the greater part of their expenses, and it was also laid down that the general sick-nursing operations must be carried out under the direction of the medical practitioners, except in emergency. In 1911 the first nurse was sent to a remote township called Beech Forest, and by the end of the year four nurses were at work. The practical difficulties at once became obvious. No nurse would be satisfactory who did not possess both a general and a midwifery certificate, and the supply of doubly qualified nurses was not plentiful. There were no ambulances in the country, and the local committees found great difficulty in raising enough subscriptions to pay the salaries. Nevertheless, by the end of 1914 twenty centres had been established. The method of financing by donations was abandoned and a system devised by which, for a fixed annual sum, members were entitled to the services of the nurses for themselves, their wives, and children up to the age of 16.

The association had by this time become too large for honorary management, and the "Walter and Eliza Hall" Trust gave the Central Council £250 per annum for the salary of a travelling superintendent. Each centre was now completely autonomous, electing its own committee and managing its own affairs, subject to the general rules of the association. The medical practitioners of every district were, under the rules, invited to join the committees of management. The nurses, as well as caring for the sick, visited the State schools in the district, lectured on cleanliness, hygiene, and first-aid, and set the children simple tests. At schools where the medical officer did not visit regularly each child was examined at least once a year by the nurse. The housing of the nurses was a serious problem from the first, because if they were boarded out or lived in hotels they had no privacy in consultation with patients who wished to see them. A system of renting or building suitable cottages was adopted in most centres with the help of the Central Council. By great foresight most of these cottages were planned so that they might be extended later into hospitals.

The public education, which was a no less useful feature of the nurses' activity than the practical help they gave, started to bear fruit in 1920 in a remarkable hospital movement. A State reservoir was being constructed a remote district, and the workers lived in a camp, which rapidly grew to the dimensions of a small town. The State Rivers and Water Commission applied to the association, which provided a nurse on the co-operative system. It at once became clear that some sort of hospital accommodation was essential, especially for maternity cases, and the Commission provided a small wooden cottage, linked by telephone to Alexandra, the nearest town twenty miles away, where there were two medical practitioners. The second hospital was built as a war memorial in a centre forty miles from Melbourne; the third was established on Phillip Island, an isolated spot, by the generosity of a citizen. The work had attracted the attention of a number of public trusts by its self-reliance and value to the community, and these bodies provided help which still further accelerated its growth. Now that the movement consisted of forty-seven centres, three hospitals, and six ambulances, it had passed far beyond the capacities of a small committee, and its Central Council was incorporated to give it the status necessary to take charge of its property. A firm of lawyers, a firm of accountants, and an architect were appointed. In order to ensure the supply of suitable nurses the association started to train its own staff in general nursing, midwifery, and infant welfare, and to insure them against accidents and disease. This enabled the hospital system to be much extended, and fifteen private hospitals have been converted into efficient nursing hospitals; the total number is now twenty-nine. The obstetric work is extraordinarily efficient, with very low mortality rates, and the professor of obstetrics in Melbourne University advises on all difficult cases. The system is exactly what is needed in the country, and its records contain many valuable lessons for others.

HUMAN GAIT

Man is the only strictly biped mammal, for the higher apes are quadrumanous, and birds alone share with man the ability to stand on one foot. Human gait has been said to consist of a series of intercepted falls from a one-footed stance, and it is not surprising that many questions arise in the study of such a function as that of human locomotion or that its analysis has interested physiologists for many years. In the *Journal of Bone and Joint Surgery* for October last there are two articles on gait, written from different points of view. Dr. Dudley Morton of New York writes on "The angle of

gait: a study based upon examination of the feet of Central African natives"; and Drs. R. P. Schwartz and Arthur L. Heath of Rochester, N.Y., on the pneumographic method of recording gait. The first of these deals with the simple question of abduction of the foot in walking, and attempts to lay down a standard by which to judge the gait of mankind in general from measurements taken from unsophisticated, bare-footed savages. This research leaves on one side, for the time being, the far more complicated problem of the mechanism of gait and of the physiology of the muscles and other locomotory apparatus, which are the objects of the study of Drs. Schwartz and Heath.

The angle of gait was studied some years ago by the late E. H. Bradford of Boston. One of the results of his observations was to set up as a standard the supposed gait of the Red Indian, in which there was said to be neither out-toeing nor in-toeing, but in which the mid-line of the foot remained ever parallel to the line of advance, whether constrained thereto by the narrowness of the track or not. P. Hoffman, from a comparative study of habitually bare-footed and shoe-wearing persons at the Louisiana Exhibition, arrived at rather inconsistent results. He found that some bare-footed people turned their feet out, while others did not. Thus the appeal to the noble savage seemed to have failed, at any rate for those who held that the Indian gait was the only correct one. In 1829 an expedition went to Africa under the auspices of Columbia University and the American Museum of Natural History (New York), one of the special objects of which was, by examining footprints, to determine the gait of bare-footed natives. Records were thus obtained of the gait of 147 natives of the Belgian Congo, of whom sixteen were pygmies. It is interesting to find that there was no definite difference between the gait of the pygmies and the taller tribes. The footprints were taken in sets of three complete paces (six impressions) in aniline ink on paper spread on a board, so that each subject had a chance to get into his stride or to display variations in gait. This research is illustrated by a number of tables and diagrams. The results obtained in Africa were compared with the results of similar measurements and tests conducted upon a number of male and female American college students, and were found to agree with them. The conclusions arrived at are that the predominating position of the feet is one of moderate eversion (out-toeing), and that the so-called Indian position is not the correct and natural posture. The average gait among Americans and Africans together showed out-toeing to the extent of 7.5 degrees, which is slightly more than that found in American students. But inconstancy of out-toeing was noticeable in all groups. That is to say, it varied in extent in the same person at different times, so that, as Dr. Morton says, an arc between five and ten degrees of out-toeing seems to give a more faithful estimate of how a foot is normally used than an angle of gait arrived at by mathematical averages. The hip-joint and its musculature, much more than the foot or ankle, determine the position of the foot in walking. It is satisfactory to find that such careful investigations go to confirm the practice of the British Army, which inculcates a moderate degree of eversion in marching troops.

The paper of Drs. Schwartz and Heath deals with a far more complex matter. The mechanics of gait were first seriously attacked by the brothers Weber of Leipzig, whose classical work on the physiology of motion and locomotion, and the mechanism of joints, was published in 1836. But it was not till Marey's moving pictures laid the foundation of the cinematograph industry that the subject could be studied profitably. The rapid film and slow-motion reproduction put into the hands of physiologists a method of research of the greatest value. In this country, during the late war, a film of normal gait, as well as of gait with an artificial limb, was made in the experimental workshop of the Munitions Inventions Department. In Germany Du Bois Reymond, and in France Ducroquet, made similar investigations. Originally these inquirers were concerned with the effects of an artificial leg upon the gait, but incidentally the problem of normal gait came into consideration. The British film has not been published by the authorities, but it was the subject of a clinical lecture delivered by Mr. R. C. Elmslie at St. Bartholomew's Hospital in 1920 entitled "The mechanism of walking." Drs. Schwartz and Heath have followed another method, based on the pneumographic method of G. Carlet, which was described in 1872 but is now combined with a cinematograph film. The pneumographic method consisted essentially of rubber chambers containing air, placed in one or more positions in the soles of special shoes. These chambers communicated by means of tubes with one or more kymographs, and the pressure-effect of the body weight on the sole of the foot was then recorded on a tambour. Nowadays, the subject is simultaneously photographed by a rapid-motion cinematograph camera. Carlet made his subject move in a wide circle of which the camera was the centre, revolving with him; but Schwartz and Heath have improved on this by making the subject walk on a moving pathway (called by them a treadmill). With such an apparatus it is obvious that much information might be gained, not only of normal gait but also of abnormal gaits, such as that in a case of talipes. Science is said to be measurement, and by recording measurements of deformity and disability the correction of uneven walking may be rendered possible in the fullness of time.

A REVIEW OF ALLERGY

To those who have neither time nor inclination to study the extensive and confusing literature which has sprung up around "allergy," a clear and well-balanced review of the subject is not unwelcome. The Regius Professor of Physic at Cambridge supplies, in the current issue of the *Practitioner*,[1] a long-felt need in this respect. He describes the condition of allergy as a chemical idiosyncrasy which exemplifies the variation in the response of different individuals to the same stimuli—"a fierce

[1] Brown, W. Langdon: On Allergy and Some Allergic Diseases, *Practitioner*, December, 1932.

and frightened attempt on the part of the cell to preserve its chemical identity." Anaphylaxis is an acquired sensitivity, in contrast to the inborn sensitivity met with in the allergic tendency. Passing to Sir Thomas Lewis's work on local reactions in the skin, and the production of these phenomena by intradermal injections of "H-substance," Professor Langdon Brown traces the steps by which it was discovered that adrenaline directly antagonizes histamine, and discusses the mechanism of liberation of H-substance. The recognition, in 1930, of a special ferment, histaminase, proved the existence of yet another substance besides adrenaline which has the power of destroying histamine. This opens up the possibility of familial and hereditary allergic sensitivity being due to a lack of this ferment, a supposition which would be strengthened if excessive amounts of the products of protein breakdown were found in the blood and urine of allergic subjects. Barber's demonstration of a high amino-acid content in the blood of these patients supports the contention, while Oriel's claim for an abnormal protein derivative in the urine fits in well "with the rest of this metabolic puzzle." This is as far as Professor Langdon Brown is prepared to take the general biochemistry of allergy, and there he leaves it, with emphasis on the idea of a congenital lack of histaminase aggravated by an intermittent deficiency in adrenaline. While considering particular diseases he draws a close parallel between the so-called anaphylactoid, or arthritic, purpuras (Schönlein's and Henoch's) and urticaria—especially in its giant form. The treatment of urticaria resolves itself into: (1) investigation of the toxic factor, including bacteriological examination of the stools; (2) general desensitization by 7½-grain peptone capsules given before meals; (3) damping down the over-active parasympathetic with bromide and belladonna; and (4) assisting the sympathetic with adrenaline injections or routine ephedrine administration. Calcium is regarded as useful only when there is a calcium deficiency in the blood, while auto-haemotherapy is "worth considering." On asthma the writer has much of interest to say. Here the disease is to be subjected to an "all-round assault," which includes elimination of sources of peripheral irritation, a search for the deeper-seated psychological troubles, desensitization, and the use of the patient's suggestibility. The effects of climate may often be due to suggestion, though it is true that altitude has a separate and definite effect on asthmatics, very few of them being able to achieve a paroxysm at much more than 3,000 feet above sea-level. A discussion of hay fever, food and drug allergy, and allergic enuresis, brings an admirable article to its conclusion.

CRUELTY TO CHILDREN

The annual report for 1931–2 of the National Society for the Prevention of Cruelty to Children states that during the twelve months help was given to 106,046 children by the 260 men and women whole-time inspectors employed by the society, and the many voluntary workers. These children were concerned in 43,246 requests for investigation, and in all except 731 the statements so made were ultimately justified. In many instances the parents themselves came forward voluntarily to ask for assistance, because they felt that all was not well with their children—a fact indicating that deliberate cruelty or neglect of children is less frequent than might be deduced from these figures. The number of prosecutions (520), however, remains fairly constant year by year; such action is only taken when prolonged neglect or recurrent ill treatment is not brought to an end by advice and admonitions. There has, moreover, been an increase for five years in succession in the number of cases of violence, the total for the year under review (3,645) being the highest since 1913–14. Yet alcoholism and brutality are much less often encountered than hitherto, and the conclusion is therefore drawn in the report that cases are being more readily notified to the society's workers nowadays, while the better facilities for travel enable more ground to be covered. Instances of real cruelty still persist; illustrations are given of the contingent circumstances, and it is mentioned that the society was instrumental in transferring 563 children from the custody of their parents to Home Office schools and certain voluntarily supported homes and institutions. The N.S.P.C.C. pleads for wider recognition of its work, so that cases may be discovered in the earlier stages, when less drastic measures may be effective, and the children thus be spared much suffering. As regards the medical side of its work, it is reported that 767 orthopaedic cases were dealt with in the year, that there is close co-operation with medical officers of health and hospital out-patient departments, and that part of the programme of the society's inspectors and voluntary workers is directed to securing compliance with medical instructions and cautionary advice.

PREVENTION OF BLINDNESS

The annual meeting of the International Association for the Prevention of Blindness was held on November 19th in Paris, under the chairmanship of Professor de Lapersonne. M. Justin Godart, Minister of Public Health, attended, and the Minister of National Education was represented by his first secretary. After the president had read the annual report, showing the steady progress made by the International Association and its French committee since their creation, a discussion took place on the preservation of sight among children (sight-saving classes). Professor Pierre Villey, secretary-general of the Valentin Haüy Association, described in pathetic terms the sad situation of these partially blind children. While public opinion had been concerned for a long time with the welfare of the blind, and while institutes for the education of blind children had been established almost everywhere, very little had been done for partially blind children. The speaker insisted on the necessity of organizing for these children special classes, where, by appropriate methods of teaching, they might acquire the same knowledge as children with normal eyesight. Mr. Bishop Harman, the originator of sight-saving classes, related the history of these classes in Great Britain, where the first was established in 1908. He explained the special teaching methods used in these classes. There are now in London thirty-seven classes in fourteen districts, with 850 children; moreover, 100 places are reserved for partially blind children in secondary schools. Mrs. Winifred Hathaway (New York), associate director of the National Society for the Prevention of Blindness,

described the situation in America, where there are no fewer than 409 classes, distributed in 118 cities and twenty-two States. Methods used in these classes are slightly different from those originally recommended. Professor Bartels (Dortmund) gave full particulars of the teaching methods used in sight-saving classes in Germany. He showed that educational expenses, although higher in a sight-saving than in an ordinary school, were yet far below the cost of teaching a blind child. On financial grounds the State ought therefore to promote the establishment of these schools, which have been named the von Graefe schools. Dr. August Dufour (Lausanne), chairman of the Swiss Central Union for the Welfare of the Blind, mentioned the difficulties which had to be overcome before sight-saving classes could be established in a small country with 4,000,000 inhabitants, such as Switzerland. Nevertheless, one of these schools had been established at Zürich in 1925, and another at Basel in 1930. He observed that, thanks to the special educational methods used in these classes, the results obtained were far superior to those which might have been expected if these children attended the ordinary school. Dr. Redslob stated that the sight-saving school of Strasbourg, created in 1908, was one of the oldest in existence. He emphasized the necessity of multiplying the number of these schools in France, so as to follow the lead given by other countries. Dr. Monbrun, associate secretary-general of the French Committee, said that inquiries carried out among Paris school children had shown that the proportion of children with defective vision was approximately 1 to 500 or 750 children. As a result of the steps taken by the Municipality of the Seine the Minister of National Education has authorized the establishment of a sight-saving class in Paris.

SPAHLINGER VACCINE AND CATTLE

The Minister of Agriculture, Northern Ireland, has issued an interim report on M. Henri Spahlinger's bovine antituberculosis vaccine.[1] Experiments were carried out on eighteen calves bred from an A.A. bull and cows which had passed the double intradermal tuberculin test prescribed by the Medical Research Council, and on fourteen other calves removed from their dam and brought to the experimental farm as soon after birth as possible: they were brought up on Grade A (T.T.) milk. The present report deals with eleven animals treated with M. Spahlinger's new simplified vaccine of 1929, and a control group of seven animals. Of the eleven animals three were injected intravenously, three subcutaneously, and three intramuscularly with the vaccine, while the other two were injected subcutaneously with vaccine plus olive oil. This was done in December, 1931. To test the immunity produced an intravenous inoculation of *B. tuberculosis*, sufficient to cause death in unvaccinated animals in from one to two months, was given to the eleven vaccinated and the seven unvaccinated calves. The test doses were given in June, 1932. On December 1st, twelve months after vaccination and six months after the test dose, the eleven animals were clinically healthy. Of the seven unvaccinated animals five were dead within approximately two months; the other two are alive and apparently healthy. It should be observed that all these animals were kept in the same pasture and had access to the same water-troughs and shed. The survivors were therefore exposed to natural as well as to artificial infection. The value of this vaccination can be assessed only when the experiment is completed and fuller details (post-mortem, etc.) are available.

[1] Reports on Experiments with Henri Spahlinger's Anti-tuberculosis Vaccine. By H. G. Lamont, M.Sc., M.R.C.V.S., W. R. Kerr, D.V.S.M., M.R.C.V.S., and P. L. Shanks, B.Sc., M.R.C.V.S. *Veterinary Record*, No. 51, vol. xii, December 17th, 1932.

X RAYS IN PROSTATIC ENLARGEMENT

Many different opinions have been expressed about the value of *x*-ray therapy in the treatment of enlargement of the prostate. Speaking generally, it may be said that whilst radiologists have claimed good results, urologists have, on the whole, remained sceptical with regard to the action of *x* rays in this field. It is possible that the opinions expressed by both types of expert have been biased by a certain amount of prejudice; at any rate, it is clear that some of the cases included by radiologists among their successes have not been proved definitely to be cases of enlargement. In order that their statistics may be relied upon a closer co-operation between surgeon and *x*-ray expert is essential, and since the surgeon starts with an inevitable mistrust of any treatment other than surgical this collaboration is rare. For this reason an article by Dr. Jules Gaudy, on the radiotherapy of the enlarged prostate,[1] is of particular interest. The author is in charge of a urological clinic at Brussels, and therefore approaches the subject from the surgeon's point of view. In speaking of the action of the rays on the histology of the enlarged prostate, he quotes a case recorded by Wolff,[2] in which an examination of the prostate of an old man who died of pneumonia twenty-four hours after irradiation of his prostate revealed marked signs of degeneration. In many parts of the prostate the glandular tissue was not recognizable, and the acini were crowded with cast-off and degenerated cells. In spite of this Dr. Gaudy is inclined to think that the rays affect mainly the state of vascularity of the prostate. It is the experience of most surgeons who have employed *x* rays that whilst the symptoms of the patient may be ameliorated, more often than not the size of the prostate remains the same. It is the superimposed factor of congestion that is probably responsible for the aggravation of symptoms that every prostatic is likely to experience during the course of his trouble. Any treatment, therefore, which reduces this will result in an improvement. The fact that a very large number of patients who have benefited by *x*-ray therapy have ultimately come to the operating table suggests also that *x*-ray treatment does not exercise much effect on the progress of the disease. It is, however, admitted by the majority of writers that *x*-ray therapy may have a good effect on certain symptoms, particularly on pain and on haemorrhage. Prostatic neuralgia, tenesmus, polyuria, and priapism may all disappear, at any rate in the early stages of the disease, the disappearance being due, as has already been stated, to a reduction in the congestion of the gland. All writers are equally in accord as to the efficacious action of radiotherapy on haemorrhage.

[1] Gaudy, Jules: *Bruxelles-Médical*, November 6th, 1932.
[2] *Zeit. Urol. Chir.*, 1929.

The results obtained are often rapid and relatively lasting, and it frequently succeeds in checking the haemorrhage when other remedies have failed. Finally, Dr. Gaudy points out that radiotherapy is far more likely to be beneficial in the soft, adenomatous type of prostate; it has very little effect in inflammatory cases or on the small, fibrous prostate. Radiotherapy may therefore be regarded as a useful adjuvant, but in no way does it replace prostatectomy as the treatment of choice.

TOWN AND COUNTRY PLANNING

For more than twenty years the Garden Cities and Town Planning Association has issued a small monthly journal, which has been the recognized organ for information on the progress of housing, town planning, and especially the development of garden cities, but with the passage of the Town and Country Planning Act this year it was felt that the time had come for a more ambitious and authoritative publication. The first issue of the new quarterly review, *Town and Country Planning*, is prefaced with a number of greetings, from Sir Hilton Young, Minister of Health, Lord Lytton, and others. The editorial comments describe the general process by which garden cities came into existence, owing to the endeavours of the late Sir Ebenezer Howard and his friends, followed by the various movements for regional planning, and the several Acts of Parliament from 1909 to 1931, dealing with town planning. The journal is sold at the price of 1s.; it can be had from 3, Gray's Inn Place, London, W.C.1; yearly subscription, 5s. post free. On former occasions the Garden Cities and Town Planning Association has published explanatory pamphlets dealing with the Town Planning Acts, and now that those are repealed in favour of the new measure, a fresh leaflet has been prepared by the secretary, Mr. Alfred T. Pike. After setting forth the procedure stage by stage, this discusses the chief sections of the Act in detail. The price is 1s. 1d., post free.

PROFESSOR JELLINEK

Professor Stefan Jellinek of Vienna, whose work on electrical injuries and accidents is well known to engineers and practitioners of electrotherapy, has been awarded the Prix Barbier by the French Academy of Science. It was this distinguished worker who first established the fact that people who were regarded as dead after electric shock were really in a state of suspended animation and could be restored by artificial respiration. In consequence of this teaching countless lives have been saved. Professor d'Arsonval presented a report to the French Academy in which he referred to the thirty years' research on electropathology by Professor Jellinek. As a result the Academy unanimously awarded the Prix Barbier to Professor Jellinek, and the title Lauréat de l'Institut was conferred on him. In this report his latest work on the clinical and histopathological character of electric wounds is described as an "ouvrage magistral sans analogue." The report states also that "we owe to this diligent research an entirely new branch of medicine (electropathology), the social importance of which is increasing with the development of the uses of electricity." Professor Jellinek communicated his findings on the subject of the restoration of life to those who were thought to be killed by electric shock to the Electrical Section of the Royal Society of Medicine before the commencement of the great war. Many will remember his emphatic instruction "not to send for the doctor" when the victim was struck down by electric shock and regarded as dead, "but to begin artificial respiration at once and continue it for one, two, or even three hours." In recognition of his work the University of Vienna made him honorary professor of electropathology, and provided him with rooms in the university for the display of a wonderful and unique collection of specimens which he had made for the purpose of illustrating the effects of strong electric currents and of lightning on the body and on non-living objects.

CENTENARY OF SIR JOHN KIRK

Born a hundred years ago, on December 19th, at a Forfarshire manse, Sir John Kirk, like his great leader Livingstone, has left his name in East Africa. Geographers know of the Kirk Range west of the Shiré River; zoologists make mention of Kirk's gazelle; and botanists distinguish a genus as *Kirkia*. After graduating M.D. at Edinburgh in 1854, he went out to the Crimean war, and from that time onwards lived the life of an explorer and pioneer. From 1858 to 1863 he was Livingstone's chief lieutenant on the Zanzibar expedition, and was already known as an accomplished botanist, zoologist, and physiologist, as well as a skilled practitioner of medicine. After a short rest in England he returned to Africa as acting surgeon to the British Agency at Zanzibar, the centre town of an extraordinary and extensive traffic, which included ivory and slaves. As vice-consul in 1867, assistant political officer in the next year, and agent and consul-general in 1873, Kirk was intimately concerned with the difficult task of associating European civilization with a very primitive local government and outlook. Livingstone had sounded the call for the abolition of the great slave market at Zanzibar, and this was at length achieved in 1873 by Kirk, who won the friendship of the Sultan, and triumphantly succeeded shortly after the mission of Sir Bartle Frere had failed. In the subsequent years Kirk took part in the scramble for territory in Africa arising out of the claims of Germany, Zanzibar, and Great Britain. He did much to inspire and direct the little expeditions that enabled the British Government to resist the demands of Karl Peters and his German colleagues. As one of the founders and directors of the British East Africa Company Kirk stood between Uganda and anarchy, was the most active member of the board which organized and controlled the building of the Uganda railway, and was British plenipotentiary at the international conference in 1889 for suppression of slavery in every part of Africa. Until his death ten years ago he was one of the most trusted advisers of the British Government on current questions in Africa, west as well as east. The medical profession may well be proud of John Kirk.

We regret to announce the death, in his seventy-seventh year, of Professor John Glaister, who held the chair of forensic medicine in the University of Glasgow from 1898 until 1931, when he was succeeded by his son, Professor John Glaister, jun.

FUNDAMENTAL PRINCIPLES OF OBSTETRIC PRACTICE *

BY

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At present the main basis for discussions on maternal welfare is the final report recently issued by the Committee on Maternal Mortality from the Ministry of Health. It is the desire of the committee that the report should be as widely known as possible, especially since the present economic stress has postponed the fulfilment of the various recommendations which it laid down.

I have always held the opinion that the responsibility for maternal welfare in this country lies in the hands of the family doctor ; especially is this the case in country and small town areas. The consultant is a referee in difficult complications of pregnancy and labour, but his main influence is in the direction of training students. The standard of efficiency of young graduates is the specialist's care. If this standard is high the general tone of the midwifery, not only in this country, but in the whole Empire, is raised. Individual skill and conscientious behaviour are naturally very important factors in the reduction of a high maternal death rate. Conscience itself plays a part in bringing about good results ; this is impressed upon us by the committee's report. Many of the " primary avoidable factors " could have been prevented not only by care on the part of the medical attendant, but by forethought on the part of the patient or her responsible relatives. The chief lesson to be learnt from both reports is that there must be a close co-operation between the medical profession and the public. This can only be brought about by dissemination of the knowledge of the dangers which are preventable if proper care and forethought are exercised.

Primary Avoidable Factors

The final report, which was issued in August, gives little that differs from the interim report. It is confirmatory, and therefore of great value. The chief concern of the committee has been to emphasize the importance of the four groups of primary avoidable factors which, as predisposing causes, contribute to a high maternal mortality. These causes are: inadequate ante-natal care, want of skill and judgement in the management of a case, neglect of preparations for confinement, and neglect in the provision of skilled attendance. No definite information has been obtained as to the source of sepsis after spontaneous labour. The resistance of the patient herself, in my opinion, is an important consideration in those cases where no cause of infection can be found.

Want of skill on the part of a particular doctor or nurse does not influence mortality as a whole. It is the system which succeeds or fails in an area. Most practitioners say that it is in midwifery practice that they find the greatest difficulties. This is not because of the actual medical conditions, but because of the impossibility of carrying out the methods which were taught to them in the medical schools. In surgery special efforts are made when a serious condition is to be dealt with, but in regard to childbirth the opinion is still prevalent that anyone is good enough to attend a woman who is undergoing an ordinary physiological function. Constant reiteration of the facts which pertain to a high maternal mortality, unpleasant as they must be to child-bearing women, seems to be necessary in order to bring about reforms. The Ministry of Health is to be congratulated on its efforts in this direction.

We are all convinced that cases of eclampsia can be prevented to a great extent by early ante-natal care ; yet, out of 3,805 deaths investigated by the committee, 326 were due to eclampsia, and 74 per cent. of these received little or no supervision during pregnancy. The committee advises routine examinations of the urine and blood pressure ; the only difficulty seems to be to catch the patient. The number of women supervised during pregnancy is not great, taking the country as a whole. Education must convince every woman that there is advantage to health and safety to life if she reports herself early in her pregnancy to her doctor or midwife. Compulsory notification of pregnancy would defeat its own ends ; voluntary attendance as the result of a wider knowledge is of much greater value. The committee has concerned itself mainly with administrative problems, and has wisely refrained from laying down rules as to methods of special treatment.

Ante-natal Supervision : Diminution of Cases of Ante-partum Haemorrhage and Eclampsia

The final report states that of the 3,805 deaths investigated, apart from placenta praevia, ante-partum haemorrhage accounted for ninety-eight. It is doubtful whether ante-partum haemorrhage should be classified under direct obstetric causes of death. Although uterine haemorrhage occurs, the source of the complication may be found in general toxaemia due to defective elimination. The prevention of toxaemia is a marked feature of hospital ante-natal clinics. The number of serious cases is diminishing markedly, due to a large extent to examination of the patient early in pregnancy. In a ten-year period at the Royal Free Hospital there were 2,085 deliveries. Among these were 29 cases of eclampsia and 126 cases of ante-partum haemorrhage. Of the eclampsia cases four died ; all of these were delivered, the infant surviving in each case. Of these patients, two received adequate ante-natal care, and two had inadequate supervision. The death rate for eclampsia was therefore 0.03 per cent. of all maternity patients. Ante-natal supervision has brought about a diminution in the number of cases of eclampsia, but the fulminating type is met with in most obstetrical clinics, no matter how much care has been taken. Modern treatment of these patients has, however, reduced the death rate. The management of such cases should be in the hands of the senior staff, and not, as in many hospitals, in the hands of the house-surgeons who treat these emergency cases on admission.

Of the 126 cases of ante-partum haemorrhage not due to placenta praevia only a very small number showed any serious symptoms. Haemorrhage is looked upon as dangerous no matter how slight, and admission to hospital is always insisted upon. Investigations are carried out as to the degree of toxaemia present, and treatment arranged for accordingly. As a consequence only one patient died, and she had acute toxaemia, the haemorrhage being a symptom of her general condition. The death rate of 0.008 per cent. is a proof of the efficiency of early treatment of these patients. Placenta praevia may be described as an anatomical indiscretion ; it cannot be prevented. As the committee points out, however, the first signs of haemorrhage should never be ignored; they are a danger signal which, if observed, will in many cases prevent a fatal ending.

Methods for the treatment of post-partum haemorrhage were found to be inadequate (204 deaths). Blood transfusion was carried out in eight cases only. In twenty-nine cases intravenous salines, and in forty-three rectal or subcutaneous salines, were given. In hospital practice blood transfusion is possible when a grouped donor is available. In an emergency case in domestic practice, especially if at a distance from town, the difficulties are almost insurmountable. Although a donor may be forthcoming, grouping may be impossible. Here stress might have been laid upon the use of glucose, the merits of which are now undisputed. Sterile sealed flasks of the solution (5 per cent.) are now supplied, and can be utilized at once with aseptic safety in every case. In the treatment of obstetrical shock glucose is of great value.

Abortion and Caesarean Section

The final report lays much more stress upon the importance of abortion as a factor in a high maternal mortality. The first report gave the impression that this condition was not a serious contributory factor. The

* Read at the opening meeting of the St. Pancras Division of the British Medical Association, October 11th, 1932.

committee emphasizes the difficulties of treatment, more especially in cases of septic abortion. Special isolated maternity beds in hospital are advised, the ordinary maternity department being considered unsuitable owing to the risk of infection from the abortion cases.

The objection in the case of Caesarean section is that the operation is carried out in some instances after previous attempts at delivery have failed. The rate of Caesarean operations is looked upon as too high. It is an easy operation, but a decision as to its necessity requires judgement and experience. It is lightly undertaken by the younger specialists or by the general surgeon, who may have little knowledge of the vagaries of labour. Caesarean section is an easy way out of most complications of labour, and its chief attractions are that it relieves anxiety about the infant and is in itself a time-saver. The chief indications are to be found during the later stages of pregnancy, and precautions can be observed which will minimize its risks. Vaginal examinations should not be made repeatedly, and local intervention should be avoided in cases where the operation may be found to be necessary during labour. Trial labour in cases of disproportion has diminished the indications for Caesarean section to a marked degree. Experience alone can tell us when it is necessary to operate in labour. In some cases, if labour is allowed to proceed until the patient is exhausted, the operation may not give favourable results.

DEATHS FROM CARDIAC, PULMONARY, OR RENAL COMPLICATIONS

In regard to the deaths (746) not due primarily to pregnancy, suggestions are given as to the general treatment of patients suffering from cardiac, pulmonary, or renal complications. In the majority of cases of this type pregnancy is not the primary cause of disability. The history of cardiac cases shows that rheumatism in childhood is as a rule the predisposing cause. The family doctor and the public authorities should realize that much preventive work could be done by careful diagnosis of rheumatic symptoms in infancy as well as in childhood. Since special attention has been paid in the Royal Free Hospital to cardiac disease associated with pregnancy the results have been very successful. Out of 200 cases of heart disease there was a death rate of 2 per cent. ; this low mortality is due to the co-operation of the cardiologists with the obstetrical staff. The main line of treatment is rest in pregnancy and the administration of sedatives and anaesthetics in labour. Induction of abortion rate has very much decreased. One could have wished that the committee had laid more stress on the treatment of pulmonary tuberculosis. Special beds should be provided in some sanatoriums, and provision for a confinement should be made in a maternity hospital for the treatment of tuberculous patients during late pregnancy and the puerperium. Complete rest in healthy, open-air surroundings is of great importance for the tuberculous expectant mother.

The Midwives' Institute, in consultation, has advised the holding of post-mortem examinations in cases of death from childbirth ; the medical officers of health, however, do not advocate this procedure. An official post-mortem examination would strike consternation into the heart of a family doctor or midwife in a small town or country area. Local criticism of a maternal death is bad enough, but the added worry of an inquiry and the possibilities of blame would make most practitioners avoid the practice of midwifery. I cannot see how any local inquiry or its results could be anything but a public affair. The tendency would be for patients to enter hospitals or nursing homes.

Careful consideration of hospital district reports shows that there is something to be said for the isolation of normal midwifery patients in their own homes. The district death rate of a hospital is very small. In the Royal Free Hospital there were no deaths in ten years. It is true that complicated cases are admitted to the wards, but this is as it should be. Segregation in hospitals and small homes increases the risks of sepsis, although sepsis is not a frequent occurrence in properly organized institutions. The performance of obstetrical operations in the homes of poorer patients is attended with great risk. No conscientious practitioner should contemplate an operation without its attendant facilities of skilled help and equipment. A considerable number of obstetrical complications can be foreseen at the ante-natal examination. Arrangements should be made for the patient either to enter a hospital or to have skilled help in her own home.

The question of anaesthetics and sedatives has been discussed in the report, and it is very disappointing to find what little progress has been made in this direction. The committee has given no impetus to the efforts which are being made to relieve the agonizing suffering endured by many poor women during labour. The subject is at present an economic one. It is less trouble, on the whole, for responsible authorities and practitioners to continue in the belief that labour is not a painful process, or that it is the lot of women to endure it.

THREE IMPORTANT FACTORS

This brings me to the discussion of three points which I think are of some importance in the establishment of an efficient maternity service for the benefit of poor patients. First, the most efficient ante-natal clinics are those in a hospital where the medical staff follow up the patients throughout pregnancy, labour, and the puerperium. The staffing of ante-natal clinics throughout the country has been somewhat haphazard. Obstetrical qualifications are not always considered to be of paramount importance in the selection of a medical officer. I have drawn attention to this fact for some years. The medical officer of an ante-natal clinic is not, as a rule, responsible for the patient during labour, while the doctor or midwife tends to blame the ante-natal medical officer for overlooking some complication which may not have been manifest before labour began. Criticisms occur and efficiency suffers where responsibility is shared. The family doctor, or the doctor who is to be in attendance at the confinement, should, when possible, conduct the ante-natal examinations. If it is a midwife's case, the doctor called in when required at labour should be the one who has had previous supervision of the patient. Every pregnant woman who has arranged with a midwife for her confinement should be seen at least once by a medical practitioner.

Secondly, the favourable results found in the records of hospital district practice are explained by the fact that the supervision of the patients is conducted by medical officers who are under strict control. The staff are required to carry out as far as possible the methods of treatment employed in the hospital. Equipment comprising sterile gloves, towels, etc., can be obtained, and anaesthetics can be administered when required, while the skilled advice of senior members of the staff is available. The patient can be taken to hospital immediately should the necessity arise. A graduate who sets up for himself in a poor district finds little available in the way of assistance which would conduce to the safety of his patient. The medical staff of a maternity hospital should give assistance when required to do so by local practitioners. Anaesthetics could be administered and help given by the assistant medical officers of the department, while the prestige of the medical attendant would be safeguarded and other conditions considered. I see no reason why a hospital should not be a help to local practitioners instead of a critic of their methods. Complicated cases are sent up to the ante-natal clinics for advice ; this advice should be available at the time of the confinement. I would support any invitation from doctors in the neighbourhood of the Royal Free Hospital whose patients were of the poor, necessitous classes.

Thirdly, discussions are proceeding as to the best methods of increasing the facilities for training in clinical obstetrics. Five or six years after graduation some of this training may be out of date, and further instruction in modern methods required. The less said of post-graduate instruction in obstetrics in this country the better ; it is no credit to us. Isolated demonstrations are

held at intervals, but these only reach a few local practitioners or those home on leave from abroad. The average practitioner does not want a busman's holiday ; he wants to get away from patients and have a thorough change of scene. If he wishes to attend a course of study in a teaching centre he loses his holiday. Let us take a lesson from the refresher courses which are now being provided for the county midwives. These take place once a year at a place convenient for everyone in the county. Lectures are given by specialists, and the midwife is kept up to date ; these courses last sometimes five or six days. Post-graduate demonstrations could be organized by the local Branches of the British Medical Association in each county or group of counties. The head office could obtain specialists from teaching centres. It would be easy for practitioners to attend several or all of the lectures, as they would be held at no great distance from their home areas. The machinery for carrying out such a scheme is in the hands of the British Medical Association and its Branches, and there should be as little difficulty as in the case of the post-certificate courses for midwives. I feel sure it would be a success, and would be a very valuable contribution towards raising the efficiency of midwifery practice throughout the country.

KING EDWARD'S HOSPITAL FUND

DISTRIBUTION MEETING

The Prince of Wales presided over the annual distribution meeting of King Edward's Hospital Fund for London on December 15th, and read a message from the King congratulating the council on having been able to raise the sum distributed to £300,000 out of its ordinary income for the year.

The Prince explained that the average annual increase in distribution during previous years had been about £8,000, and that the present increase of £25,000 over last year represented an exceptional measure in view of the exceptional difficulties of the hospitals in the present crisis. The £100,000 level had been reached in 1905, and the £200,000 mark in 1918, a good margin having on each occasion been retained in hand. This year, however, with an income of £303,000, it was felt that the retention of a smaller margin was justifiable. The Prince remarked that there ought to be an end of any talk about a gradual drying up of the stream of charity. The voluntary hospital income had continued to grow year after year, many who could so afford giving more because others had to give less ; herein was clear evidence of the fact that the British nation, taken as a whole, believed in maintaining the voluntary hospitals as an essential part of the medical service of the country. One anonymous donor had offered to a hospital £6,000, half the amount it needed for a much-needed extension of its out-patient department, on condition that the other half was raised within a specified time ; the public responded, the money was raised, and the work was put in hand much quicker than would otherwise have been possible. Expenditure on the pensions scheme had now reached £20,000 ; this would involve drawing on the special pensions reserve built up during the last three or four years. The report of the Out-Patient Committee would be published before the council meeting in January. An inquiry into the methods at various hospitals had been completed, and the report would contain a discussion of the relation of out-patient departments to other existing agencies for providing medical treatment, as well as a general survey of the progress of an out-patient. It had been suggested that a small follow-up committee should be appointed to consider how the mass of information collected could best be rendered generally available in order to enable hospitals to improve their own procedures. The late Sir John Young, who died last July, had asked the King's Fund to arrange for the conversion of his residence into a convalescent home in connexion with a hospital in which he was specially interested ; the necessary arrangements were proceeding. For propaganda purposes a new form of exhibit had been prepared—namely, a miniature hospital, about four feet high, elaborately fitted to illustrate modern equipment. This would be on view in Bond Street early in the New Year, and His Royal Highness hoped to open the exhibition.

Mr. E. R. Peacock, honorary treasurer of the King's Fund, announced that the receipts from legacies were expected to amount to nearly £59,000, as compared with £69,000 last year ; there was, however, no sign of any general tendency towards a falling off in receipts from this source. The British Charities Association had again contributed £10,000. Lord Marshall, treasurer of the League of Mercy, announced that the grant from the League would be £20,000, an increase of £3,000 ; this was largely due to the great success of the entertainment promoted by the League, under the special patronage of the Prince of Wales.

England and Wales

The Deaf in England and Wales

The Ministry of Health has issued "A Study of the Deaf in England and Wales, 1930 to 1932," [1] being a report by Dr. Alfred Eichholz, based on an investigation instituted in 1930 "to obtain fuller information . . . on the position in industry of deaf and dumb persons and of the facilities for their education and training and for securing employment." The investigation has been thorough, and the report represents a comprehensive survey of the education and social welfare of the deaf and of the conditions affecting their professional and industrial employment. It is estimated that there are 34,000 deaf and dumb persons in England and Wales, of whom about 3,000 are under 16. The number of deaf and dumb school children, however, has shown an appreciable decrease each year. In 1930 the number on the roll of special schools was 3,951 ; in 1932 this number had fallen to 3,753. Deaf-mutism is of two kinds, pre-natal and post-natal in origin, but whether the former can be reduced Dr. Eichholz does not surmise. The factor of prevention bears upon the latter, and while the welcome decrease in the number of deaf and dumb school children is attributed to public health administration and the school medical services, much more remains to be done. Dr. Eichholz suggests that the Ministry of Health should urge local authorities to give close attention to the early and continuous treatment of infants suffering from ear defects, and that the Board of Education should invite them to improve their arrangements for the detection of defects and for the supervision of all cases by medical practitioners with adequate otological experience. The report also suggests that the Ministry of Health and the Medical Research Council should take steps to institute a study of the age incidence, causes, and treatment of ear defects.

Stenhouse Williams Memorial

In memory of R. Stenhouse Williams, M.B., C.M., the first director of the National Institute for Research in Dairying, who died last February, it is proposed to raise a fund to be used for the advancement of dairy science at the Institute, near Reading. Dr. Williams had devoted himself unsparingly to the cause of the practical application of science to the problems of the dairy industry, and at the time of his death was energetically striving to make the future of the Institute secure. It has been felt, therefore, that the "Stenhouse Williams Memorial Fund" could not be better applied than to the fulfilment of his ideals, which would be of very great benefit to the world

[1] *A Study of the Deaf in England and Wales, 1930 to 1932.* Report by Dr. A. Eichholz, C.B.E., to the Minister of Health and the President of the Board of Education. London: H.M. Stationery Office. 1932. (3s. net.)

in general. It is intended also to erect within the Institute a small permanent memorial to him. Donations should be sent to Mr. S. R. Whitley, J.P., "Rookwood," Shinfield, Reading.

Middlesex Hospital

At the Court of Governors of Middlesex Hospital on December 14th, Prince Arthur of Connaught, who presided, said that economies in the hospital administration had been effected to the extent of £5,000, without sacrificing the efficiency of any of the departments dealing with patients. This was the result of the work of a joint body representing the board and the medical committee, formed to consider possible economies. Prince Arthur pointed out the difference between savings in personal and in institutional expenditure. The individual, in most cases, could economize, he said, without sacrificing his personal efficiency ; but if a hospital was to continue to treat the sick efficiently it must make the fullest use of the specialized skill of its staff and the latest scientific technique, which nowadays necessitated the upkeep of many very expensive departments. He mentioned the radiological department, the pathological and biochemical department, and the electrotherapeutic, massage, and other services, all of which required costly plant, and were necessary to proper treatment. So far it had been possible to keep all the beds open during the past most difficult year, thanks to the result of a special appeal to the hospital's regular friends. The crisis would probably be no less severe next year, and the same friends could hardly be appealed to again, so that he urged the need for the enlistment of new supporters. A special strain upon the resources of all concerned would be needed to keep the institution afloat and to maintain its traditions and its services unimpaired. It was announced on the same occasion that a gift of £20,000 had been received from Mr. S. A. Courtauld, to be added to the endowment of the Courtauld Institute of Biochemistry for the purpose of meeting current expenses. Mr. Courtauld, during the last few years, has endowed university chairs in anatomy and biochemistry at the Middlesex Hospital at a cost of £20,000 each, and has given £40,000 for the erection of the Courtauld Institute—a total benefaction, with this latest addition, of £100,000.

Herefordshire General Hospital: Proposed Increase of Honorary Staff

A largely attended meeting of the board of management of the Herefordshire General Hospital, Hereford, was held on December 10th, to consider a proposal that the board should be empowered at its discretion to add to the number of members of the honorary medical staff. According to present rules, this is restricted to three physicians and three surgeons. Mr. E. F. Bulmer, a member of the board, proposed that the honorary staff should consist of such physicians and surgeons as the board should appoint. He said that the restriction was contrary to the public interest and to the Hospital Policy of the British Medical Association, which laid it down that full opportunity should be given to private practitioners who possessed the necessary qualifications and experience to participate in the work of the hospitals, and that, as the number of hospital patients increased, the medical staff of all grades should be increased also. The number of patients and the work done at the hospital had increased considerably during the last ten years, but the number of members of the honorary staff remained the same. The exclusion from hospital practice in Herefordshire must deter medical men of high qualifications from settling in the county. The resolution was opposed by Dr. J. R. Bulman, senior honorary physician, who said that he spoke for the medical staff in general. He maintained that the increase of patients was not sufficient to warrant any increase of honorary staff. The major operations, divided among the three honorary surgeons, amounted to six a week for each of them. The delay in admission shown by the waiting list was not due to smallness of staff but to lack of beds. Dr. F. O. T. Strange also opposed the motion, maintaining that not more than three first-class surgeons could make a living in Hereford. He suggested that if there was any real need the board had it already in its power to appoint assistant physicians or surgeons. In reply to this Mr. Bulmer said that such assistants would hold a very inferior position ; they would not be members of the board, or have any voice in management. Mr. Bulmer's motion to do away with the restriction was carried by a large majority. The Dean of Hereford, who presided, said that the motion would have to be submitted to the next meeting of the board for confirmation, and later to the governors—that is, the regular subscribers. The question of the resignation of one of the honorary surgeons and of future appointments was deferred until after the confirmation or otherwise of the resolution. The Herefordshire General Hospital has 140 beds ; the number of in-patients last year was 1,859. There were 12,450 out-patient attendances.

Yorkshire Census Figures

Statistics relating to the West Riding of Yorkshire and the County Borough of York (H.M. Stationery Office, 7s. 6d.) show that the total population enumerated on the night of April 26th–27th, 1931, numbered 3,437,368. In the past intercensal period there was an increase of 172,127 persons, as compared with 137,543 in 1911–21, the corresponding rate of increase being 5.3 per cent., which is rather less than the national rate (5.5), and such as to place the West Riding nearly halfway down a list of counties arranged in order of their rates of growth. The character of the West Riding with respect to urbanization is indicated by the fact that there are 11 county boroughs, including York, with populations aggregating to 1,906,963 persons, 10 municipal boroughs and 109 urban districts with 1,090,432 population, and 28 rural districts with 439,973 population. The combined urban areas account for 87 per cent. of the population but 29 per cent. only of the acreage. Sheffield continues to be the most populous town with 511,757, and Leeds second with 482,809, these cities ranking after London, Birmingham, Liverpool, and Manchester, fifth and sixth largest in the country. The boroughs next following are Bradford (298,041), Huddersfield (113,475), Halifax (98,115), and York (84,813). A large number of decreases are reported. In only one county borough has the population declined since 1921, but of the 119 municipal boroughs and urban districts no fewer than 54 record a loss of population. While 8 rural districts also record a decline, the population in the rural districts as a whole has grown by 22.6 per cent., an increase which forms a striking contrast with that in the county boroughs (2.8 per cent.), or that in the municipal boroughs and urban districts (3.8 per cent.). Of the total population, 2,269,533 are over the age of 21, and the average female excess of population for the whole area is 7.6 per cent. Concurrently with an increase of 16.6 per cent. in the number of dwellings the number of private families has grown by 16.8 per cent., and the average number of families per occupied dwelling, which was 1.01 in 1911 and 1.02 in 1921, is again 1.02. It must be remembered that in the census classification of families a single lodger boarding separately from the occupier is regarded as a separate family. The increasing predominance of the three-person family, and next to that the two-person family, is brought out by the percentage distribution, which shows that these two categories now account for 47.1 per cent. of all families. On the other hand, the large families, comprising, say,

eight persons or more, have been greatly reduced in numbers, despite the increase of population during the past twenty years, and now account for only 3.8 per cent. of the total. The average number of persons per occupied room has declined from 0.98 in 1921 to 0.88 in 1931, and a considerable reduction has been effected in both the numbers and proportions scheduled in the "overcrowded" category.

Central Midwives Board

At the December meeting of the Central Midwives Board for England and Wales the report on the recent midwife teachers' examination was received and the recommendations contained in it were adopted. The draft leaflet on ante-natal care, proposed by the chairman, was approved as amended. The report on the work of the board for the year ended March 31st, 1932, was approved, as amended, and the secretary was instructed to send a copy, signed by the chairman and secretary, to the Ministry of Health. It was resolved that on and after January 1st, 1933, a fee of 10s. 6d. shall be required of all women who, having had their names removed from the Midwives Roll under the provisions of Section 3 (2) of the Midwives Act, 1926, have their names restored to the Roll. A revised Form of Memorandum with regard to falsified certificates to be attached to the Examination Schedule was approved. In view of the fact that the rules are still under revision, it was resolved to ask the Minister of Health to approve the existing rules until June 30th, 1933.

Scotland

Treatment of Speech Defects

In a lecture on defects of speech in children before the Edinburgh Medico-Chirurgical Society, Mr. Douglas Guthrie said that about 2 per cent. of all children suffered from some impediment of speech and the number of stammerers was probably three times as great as that of blind and deaf mutes combined. The problem of speech defects had been neglected in this country by both doctors and teachers. A speech clinic had been in operation for three years at the Royal Edinburgh Hospital for Sick Children under the charge of Miss Elsa Davidson, while a second clinic had recently been instituted under Miss Marjory Jones at the Psychological Clinic of the Royal Edinburgh Mental Hospital. The normal young child learned to speak not only by ear, but by watching the mother's lips and putting out his hand to touch them; the famous example of Helen Keller showed that speech might be acquired from touch alone. A correct method of breathing was essential, and the fundamental notes produced in the larynx had to be modified into articulate speech by carefully regulated changes in the positions of the tongue, lips, jaws, and palate. In the diagnosis of inability to speak, mental deficiency and deafness had first to be considered. A frequent but usually temporary and easily corrected error was the use of "Th" for "S," or "W" or "L" in place of "R"; this was often due to defects in the incisor teeth. Nasal speech might be due to cleft palate or nasal obstruction but was commonly caused by adenoids, and after an operation speech training was of the utmost importance. The disorder of speech, however, which had attracted most attention was stammering, and there were over 500 children with this disorder in the schools of the Edinburgh Education Authority. In most cases stammering was found to be of the nature of an anxiety neurosis and should be removed by suggestion. The first step in treatment was to secure complete relaxation and the next a correct control of breathing. At the close of the lecture a demonstration was given by Miss Elsa Davidson on a group of children from the clinic of the Hospital for Sick Children.

Mental Defect in Scotland

In a recent lecture on the mentally defective child, delivered to the Edinburgh branch of the National Council of Women, Dr. William M'Alister, superintendent of Bangour Asylum, defined mental defect as a condition of arrested or incomplete development of mind, whether arising from inherent causes or induced by disease or injury. However caused, it affected every aspect of the personality concerned, producing not only intellectual poverty, but stunting the physical organization as well. The lecturer insisted that there should be no delay in beginning the training of the defective; the parent should keep in mind that the process of development was a long and arduous matter, so that every year lost at the outset was difficult to regain. Nothing was achieved by ignoring defect where it existed and failing to utilize special methods of training. The defective could not be converted into a normal individual—his initial handicap remained a handicap throughout life. Much, however, might be done by training, while perseverance and good example had often converted persons who at first appeared to be helpless burdens on their relatives or on the community into individuals who were useful, although with definite limitations. The lecturer referred to the change in attitude towards mental defectives; they were now hedged about by legal guards and had great care lavished upon them by voluntary agencies in a manner that was not contemplated some years ago. In time, as a result of this changed attitude, the stigma of defect would disappear, and the mental defective would find such a position as he was able to occupy in society.

Glasgow District Nursing Association

At the annual meeting of the Glasgow District Nursing Association Mr. George A. Mitchell, Lord Dean of Guild, said that the association had been founded in 1875 for the purpose of providing trained nurses for district work. Since 1926 the number of visits paid by nurses had increased by 50 per cent., and the work of the institution was still growing. There were now four branches in the city, in addition to the main institution, and an arrangement had been effected whereby workmen subscribing one halfpenny per week could get the services of a highly trained nurse for their families when required. This scheme had been extended by opening a register for personal members, who, by subscribing six shillings, could obtain nursing services for themselves and all non-wage-earning dependants. The annual report showed that the staff included eighty nurses, who had visited 9,707 cases during the year—the highest number yet dealt with. The association had taken over Garscube Cottage Hospital, in which structural alterations had been carried out. The home nursing contributory scheme continued to expand, and its membership included employees of nearly all the corporation departments, the local staffs of railways, co-operative stores, and shipbuilding and industrial firms in the city. It was believed that this scheme enabled workmen to regain that self-reliance which at the present time tended to be sapped by recourse to the Government. The scheme had previously been confined to groups, but it was now possible for individual members to obtain the same advantages by an annual subscription. The finances of the association showed that the ordinary income had fallen in the past year by some £200, while there had been a decrease of about £400 in donations received.

CORRESPONDENCE

Haemopoietic Hormone in Pernicious Anaemia

SIR,—The observations of Drs. Morris, Schiff, Foulger, Rich, and Sherman in your issue of December 10th call for some comment. They agree with the hypotheses put forward by Castle and also by me that pernicious anaemia is most probably due to a deficiency in the gastric juice of an as yet unidentified substance that Dr. Klein and I have termed "haemopoietin."[1] This substance is only of value in preventing pernicious anaemia when it is permitted to interact in the stomach with a particular constituent, possibly vitamin B, of the protein foodstuffs. It has been shown that normal gastric juice is inactive when fed separately to a patient with pernicious anaemia, although when predigested with food or, as I have shown,[2] when administered *with food*, it is quite potent.

Continuing their argument, Morris and his colleagues then state that parenteral administration of concentrated gastric juice furnishes an active response, but the published details of their methods and controls are quite inadequate to enable an independent worker to form an opinion as to the value of the experiments done. Their results imply one of two alternatives: either (*a*) the gastric juice used contained the preformed active principle as found in liver, or (*b*) the injected material was secreted into the stomach after transport by the blood stream, and presumably was then able to react with suitable stomach contents. The first possibility was ruled out by the lack of response following the preliminary feeding experiments with concentrated gastric juice. While alternative (*b*) is not entirely ruled out, it is improbable that such occurs to any great extent in view of the complete derangement of the gastric secretory function in pernicious anaemia.

In their first paper they stated that ten hours after injection of the concentrate from 450 c.cm. of human gastric juice there was a definite rise in the reticulocytes—thus involving the following sequence of events: (*a*) absorption of injected material into, and transference by, the blood stream to the stomach; (*b*) secretion into the stomach; (*c*) sufficient digestion of food in association with it in the stomach; (*d*) absorption of the products of this digestion; (*e*) conveyance to the haemopoietic tissues; (*f*) institution of haemopoiesis; and (*g*) appearance of reticulocytes in the peripheral blood stream. This is remarkable when one recalls that intravenous liver therapy (the most active haemopoietic stimulant) requires at least twelve to twenty-four hours to manifest its effects,[3] and is dependent upon the presence of the active liver principle itself, which is conveyed directly to the haemopoietic centres, thus dispensing with the need for secretion into the stomach and the necessity for the digestion process there.

The normal human gastric juice used by them was apparently concentrated *in vacuo* at 40° C., and administered without ill effects on the patient. No further details are available. It appeared to me that this temperature was close to the limits of safety for the isolation of an active product following our experience with the thermolabile "haemopoietin," and consequently some ten months ago I concentrated *in vacuo* several litres of normal human gastric juice, taken to *p*H 7.5, at a temperature not exceeding 25° C. This concentrate was administered to an adequately controlled (cf. *British Medical Journal*, 1932, i, 325) case of pernicious anaemia having a count of red blood cells of 1,940,000 and haemoglobin 40 per cent., the reticulocytes also having remained below 2 per cent. for seven days previously. A concentrate from 1,120 c.cm. of normal human gastric juice was given intramuscularly in two doses with very marked clinical reactions each time—probably due to protein shock. At no time was there any indication of a haemopoietic response, and the blood count showed a progressive fall, until on the twelfth day there were red blood cells 1,300,000, haemoglobin 28 per cent. An excellent normal response, however, was obtained subsequently after the administration of 5 grams of an active preparation of hog's stomach. This result does not agree with the observations of Morris and his co-workers.

Further provisional results of these authors suggest that gastric juice from animals is also potent under similar conditions. They used for the purpose swine, dogs, and cattle, and state: "the swine juice [was] *obtained from slaughterhouses*"—presumably, therefore, from dead animals. It would be interesting to know how pure gastric juice was obtained from such stomachs without admixture with gastric mucosa or cells, which are themselves very active in the oral treatment of pernicious anaemia, and most certainly contain both "haemopoietin" and the "liver active principle" produced by its action on the protein post mortem. The stomach contents would also probably contain both digestion products and considerable amounts of mucus. In such cases an haemopoietic response would be reasonably expected after intramuscular injection owing to the presence of the "liver active principle," just as is observed after parenteral liver therapy. This would explain their results in the one case reported in the *British Medical Journal* of December 10th. In the cases of stomachs obtained from herbivorous animals I have failed to demonstrate haemopoietic activity,[4] and it is again difficult to understand these observers' responses using gastric juice obtained from such herbivorous stomachs.

Dr. Morris and his collaborators consider that the active material in normal gastric juice is probably a hormone rather than an enzyme. This is scarcely in agreement with either the experiments of Castle or those of Wilkinson and Klein (loc. cit.), who have put forward considerable evidence to show that this active substance is of the nature of an enzyme or similar thermolabile substance; our more recent work further confirms this view.—I am, etc.,

Royal Infirmary, Manchester, Dec. 13th. JOHN F. WILKINSON.

[1] *Lancet*, 1932, i, 719.
[2] *British Medical Journal*, 1930, i, 236.
[3] *Lancet*, 1931, ii, 791.

Poliomyelitis: Differential Diagnosis

SIR,—The question between Drs. Craig and Lowe, of the one part, and Dr. C. P. Symonds, of the other, can only be resolved logically. The issue is not really a medical one. Drs. Craig and Lowe assume (and have my sympathy in assuming) that the term "poliomyelitis" is most useful when applied to a range of cases which would include that described by them. Dr. Symonds declares, roundly, that *in* poliomyelitis certain things happen which did not happen to Dr. Craig and Dr. Lowe's patient.

Surely we should all remember that poliomyelitis, like every "disease," is a purely fictitious entity of which the characters are not settled by direct observation, but by discussion and definition, after examination of a range of "cases," selected by reason of apparent likeness in the first instance, and by the later settlement, by agreement, of the range in respect of which it is convenient to allege "attack" by the "disease." In the same

[4] *Proc. Roy. Soc. Med.*, 1930-1, xxiv, 951

way, in the Dark and Middle Ages, certain people becoming ill in certain ways, it was found convenient to allege attack by *incubi* and *succubi*, and quite good accounts were given of these fictitious entities which enabled diagnoses to be made with perfect accuracy. Indeed, discussions took place as to the nomenclature of the entities involved which would serve as models for correspondence in your columns of to-day. Logically and philosophically, our textbook entities, of this the twentieth century, stand on the same footing as did the medico-theological ones of the twelfth and thirteenth.

There are, of course, people who are ill, and by observation of their symptoms and (as is dear to the heart of every Guy's physician) their post-mortem appearances, and by comparison with "other cases," we can construct "types" which are useful, just as heralds have constructed griffins and gryphons, dragons and unicorns. But, just as a unicorn is constructed by combination of arbitrarily or conveniently selected characters observed in Nature, so the nature of our "types" or "entities" depends upon the range of "cases" on which observation is made. That range, determined by apparent affinities, should be revised as clinical observation finds suitable. Drs. Craig and Lowe apparently have extended their concept of poliomyelitis to meet certain exigencies: Dr. Symonds seemingly restricts his, on grounds of tradition and authority and custom. We can no more settle the question by going into the wards or post-mortem room and finding "poliomyelitis" than we can go into Hyde Park and shoot a unicorn. True, we can appeal to a textbook to tell us what poliomyelitis "is" and we can look at some of the sculptured figures to tell us what a unicorn "is." But, when Dr. Symonds tells us that "in" poliomyelitis this and that happens, I feel like the philosopher (or, the old lady) who wondered how the astronomers know the names of the new stars.

If anyone cares to pursue the subject less frivolously he will find a full discussion, with reference to poliomyelitis, *et hoc genus omne*, in one of the supplements to Messrs. Ogden and Richards's remarkable book, *The Meaning of Meaning*. The argument is applicable, *mutatis mutandis*, to most discussions concerning disseminated sclerosis nowadays. All investigations into the nature, causes, and treatment of disseminated sclerosis are futile to a degree unless the extent of the range of "cases" selected for investigation is first determined by agreement and definition. When the cases are selected by "authority" without definition—just because Dr. A knows a case of disseminated sclerosis when he sees it, if anyone does—there is, of course, no certitude that Dr. A's pupils will investigate the same kind of case as will those of Dr. B, who also—in the opinion of his supporters—knows a case when he sees it, if anyone does. In fact, as medical men, we should always borrow a hint from practical and workaday folk, and refuse to serve on a committee unless we have our terms of reference clearly set out in the beginning.—I am, etc.,

London, W.1, Dec. 17th. F. G. Crookshank.

Research in Clinical Medicine

Sir,—In the paper of Sir Thomas Lewis's published in your issue of December 10th it is pointed out that clinical science can be cultivated only by "a phalanx of research workers of ability and full training . . . in a manner that those engaged in the busy routine of daily practice cannot hope to accomplish." The opinions of Sir Thomas Lewis regarding physiological research must be accepted because he is a great master in that science, but clinical science is quite different, and cannot be cultivated on the lines he indicates. History amply demonstrates that it is only those who have been engaged in the "routine" of medical practice, hospital and private, who have helped the progress of clinical science. Such were Sydenham, Withering, Bright, Graves, James Mackenzie. It cannot be otherwise.

Research in clinical science is based on clinical observation, the most difficult of all scientific methods—a method that cannot be taught in a short time, like the experimental method, but is given only to those who for years have toiled in the "routine" of medical practice. Clinical science is the science of healing, and it is only those who are real healers and who observe in the "routine" of their daily practice of healing the action of various agents on sick individuals who can make it progress. Clinical science demands liberty and variety of observation, and thus it is not those who are shut into clinical wards and ordered to make researches who will help its progress, but only those who, in the "routine" of their daily practice, come upon an immense variety of facts, and are able to strike upon those which, well interpreted, become sources of great discoveries. It was in the course of such a "routine" that Jenner came upon the observations which helped him to make one of the greatest discoveries in medicine.—I am, etc.,

London, W.1, Dec. 12th. A. P. Cawadias.

Epidemiology

Sir,—The generous kindness with which Sir William Hamer has reviewed my booklet (December 10th, p. 1061) explains, if any explanation be needed, why all Sir William's juniors regard him with affection as well as with respect. There are, however, three statements in Sir William's review which I think I ought to annotate, because two of them do me more than justice and one does less than justice to a great man—Freind.

1. I did *not* protest against the "laborious compilation of particulars, the addition of one to one of Browning's low man." It would have been very ungrateful of me if I had, since such laborious compilations have been my life-work. What I did say was that to the pioneers of Greek science, who achieved so much by sheer force of intellect, a contempt of laborious compilations was a natural defect of their genius. Even Sir William's kindness cannot convince me that I am a Greek.

2. The epigrams about the light of an intelligent theory and the myriad voices of Nature are not mine but Henle's.

3. Freind did not say, and I did not quote him as saying, that Sydenham always treated all fevers in the same way. What Freind did say was that Sydenham, in spite of a pointed allusion to the diversity in respect of treatment of *continued* fevers imposed by the epidemic "constitution," did not substantially vary his treatment of the continued fevers in different "constitutions." The point is both interesting and important, but rather one for a clinician than for an epidemiologist. To me it seems that Freind, who was a clinician, is right, but I am not a competent judge. In Sections 4 to 61 of cap. iv of the first book of *Medical Observations*, Sydenham describes very fully the treatment he adopted in dealing with the continued fevers of 1661–4. In the third book (Chapter III, Sections 7–13) there is a shorter account of his handling of the continued fevers of 1667–9. In the fourth book (Chapter IV, Sections 9 et seq.) and in the fifth book (Chapter II, Sections 8–14) he gives the treatment used in the "constitutions" of 1669–72 and 1673–5. Like Freind, I cannot discover any fundamental difference between the plans advocated. Sydenham seems

always to have regarded venesection (if the patient could stand it) and purging with or without enemata as valuable expedients, but is very careful to warn his reader to pay great attention to the particular circumstances of each patient. Freind's point was, not that Sydenham was not a first-rate physician, but that in his practice as a physician, the doctrine of epidemic constitutions did not *really* affect his action one way or the other in the treatment of patients suffering from continued fevers. It seems to me a sound point.—I am, etc.,

London, W.C., Dec. 13th. M. GREENWOOD.

Maternal Morbidity

SIR,—I did not reply at once because I expected to hear more serious objections raised to my contention that all our difficulty with childbirth is due to three points on which we are wrong—namely: (1) oval or kidney shape of pelvis instead of a circular brim ; (2) stiff pelvic joints ; (3) wrong position for delivery.

The most important objection is that raised by Dr. Crookshank regarding long-headed and short-headed types requiring a different shape of pelvis to accommodate them. So it would seem, but if he will notice that in mankind *all* heads, whether dolichocephalic or brachycephalic, are circular in the sub-occipito bregmatic circumference (halo measure), which is the part of the infant's head to fit into the mother's pelvic brim, the difficulty disappears. If the long-headed infant is to be suited with an oval pelvis it only means that the head is descending in extension, and it is just because pelves are oval that flexion so often fails and we get difficulty. The round pelvis is made to fit the halo measure as a cup and ball fit one another or as an egg-cup fits its egg.

Further, when we consider that the foetal head shuts up (contracts) at three sutures, and the maternal pelvis opens (expands) at three joints at the time of birth, we see why race and difference in size between parents should have so little effect in causing difficulty in birth. I mean that a healthy outdoor native woman having a child by a European father has much less trouble than the average Englishwoman having a child by one of her own race.

I believe that any healthy pelvis with round brim and supple joints can take any head presented to it. I could not get anyone to take sufficient interest in England to experiment on these lines, so I came here, where I have been given every facility by Professor Rechou, the head of the radiological department. Working with Dr. Wanjermez we have already seen that the conjugate in a girl of 23 increases over a centimetre in the squatting position compared with the lying down position, and that in a child of 2 the change in shape the pelvis undergoes with change of posture is most marked. Again, the country doctors here tell me that women are still confined by the midwives in the squatting or kneeling position, and one of them recently had a case of a young primipara of 19 who refused to go to bed and insisted on being delivered on hands and knees, without any tearing of the perineum.

Exercise of the perineal muscles keeps the perineum supple, and the right posture—squatting—retracts it equally in all directions over the infant's head as it passes through the vulval opening. In lying on the side or back the perineum is lax, is in the way, and is more liable to be torn as the head is pushed or dragged through muscles lying in front of it. I may mention that daily exercise of the pelvic joints and of the perineal muscles is possible in France because the high w.c. seats in vogue in England are not used here, and closets, in the country at any rate, are arranged for squatting.

In reply to Dr. Simpson I would refer him to the Carnegie Report on Maternal Mortality, 1917, and would explain that I call lying on the side the *wrong position* because the pelvis is then at its narrowest and the " give " at the joints cannot be utilized—therefore forceps become necessary. Dr. Stevens's experience confirms this.

I am most grateful to all those who have helped by their criticisms and suggestions and by sending me notes illustrative of the subject from places as far apart as Tristan da Cunha, Ladakh, Australia, the West Coast of Africa, India, and New Zealand. I have been trying since childhood to find an answer to the question why a perfectly natural process should cost a woman's life, and it is a slow work for anyone working alone to deal with such a vast and complex subject. So far I have failed to find a team willing to take it on. The latest idea—chloroform for every mother—is no solution ; it merely masks our inability to find out what is really wrong, and that is, first, a crooked pelvis ; secondly, stiff joints ; and thirdly, an absurd pose adopted for childbirth. —I am, etc.,

Bordeaux, Dec. 8th. KATHLEEN VAUGHAN.

Radium Therapy

SIR,—In your leader in the *Journal* of December 17th, speaking of Lord Lee of Fareham, you say: " He quoted the conclusion of the Scientific *Committee* [the italics are mine] convened by the Presidents of the Royal Colleges of Physicians and Surgeons that ' in view of the circumstances the action of the Commission in abandoning the four-gram unit was certainly justified.' " In the report by the *Times* of Lord Lee's speech the wording of the first sentence is different, the quotation there given is: " the verdict of the Scientific *Conference* [the italics are mine] summoned by the Presidents of the Royal Colleges of Physicians and Surgeons." Your version, I submit, ought to mean, and perhaps does mean, that Lord Lee was quoting the conclusions of the *Technical Committee* set up by the conference called together last May by the Presidents of the Royal Colleges of Physicians and Surgeons. But the report of the Technical Committee, although it was submitted three months ago to the conference, has not yet been made public, and it is this committee, and not the conference, whose opinion is to be regarded as final upon the question of mass radiation. The footnote on page 33 of the Radium Commission Report, published in October, 1932, makes this clear. " The scientific problems connected with mass radiation by radium are now under examination by the special Technical Committee set up by the Conference, but, so far, no report of its conclusions has been received by the Commission." If Lord Lee is, as you seem to indicate, really quoting from the report of that committee, he is quoting from a report which is not yet public, obviously an improper proceeding, since it is impossible to check the statement quoted, which may very well have been accompanied by reservations such as that the abandonment of that particular four-gram unit was justified because, let us say, for example, the container was ill designed, a criticism which had been already made by competent experts, and the committee may not in effect condemn the use (under different conditions) of massive dosage derived from units of four grams or larger.

Again, are you quite accurate in your statement that, " if it be thought desirable to reassemble the radium into a four-gram unit the procedure is simple " ? As you yourself say, " the contents of the unit have been distributed in four separate units of one gram each to different institutions "—namely, as the Radium Commission Report announces, the Cancer Hospital, the Middlesex Hospital,

University College Hospital, and the Westminster Hospital. The Commission's report expressly indicates that this dissipation of the four-gram unit was designed "for the development of surface radium therapy," and it would thus seem that the Radium Commission deliberately relinquishes research in deep therapy with greatly larger doses. The report goes on to say that "the Commission is confident that *within a few years* [the italics are mine] the value of these one-gram units will be definitely ascertained, whilst the experience gained from them may justify the use of progressively larger units, if that course should seem desirable." It is thus obviously the intention of the Radium Commission, and it may indeed be inferred that definite agreements in that sense have been made, that the gram units thus allocated shall be retained for a period of years by the hospitals accepting them.

I would also ask: Are you justified in describing doses with one gram as "massive radiation"? There is, I submit, a very widely entertained feeling amongst radium therapeutists that the one-gram unit is neither one thing nor the other; that it is too large for surface therapy, and not large enough for deep therapy such as is universally practised upon the Continent, where units of from four to eight grams are being employed. This feeling explains the refusal to accept the one-gram unit by certain London teaching hospitals with special reputation for radiological experience, to whom the offer was first made by the Radium Commission when it broke up the four-gram unit in July last.—I am, etc.,

House of Commons, Dec. 17th. E. GRAHAM-LITTLE.

The Medical Profession and the Lay Press

SIR,—On December 14th a person who called at my consulting rooms was told I was in bed with phlebitis, and could not be given an appointment for some time. The next day an article of the type from which we, as a profession, urgently require protection, appeared in a daily paper. Two days later the following apology was printed:

SIR HAROLD GILLIES
RECOVERY FROM HIS ILLNESS

Our attention has been called to the references made in the article published in the *Daily Express* on December 15th to the recent unfortunate illness of Sir Harold Gillies. It is suggested that these references are open to the construction that Sir Harold Gillies is seriously and incurably ill. This is not so, and we had no intention of suggesting it. We are pleased to state that we are informed that Sir Harold Gillies is recovered, and hopes to resume his practice again next week. We wish to express our regret for any annoyance or inconvenience that may have been caused to Sir Harold Gillies by the article referred to. It is perhaps unnecessary to state that the whole article, which was of a laudatory character, was published unknown and without reference to Sir Harold Gillies.

I have to thank the Medical Defence Union and their solicitor, Mr. O. Hempson, with whom I communicated immediately, for this prompt result. Satisfactory as this is, it can undo only a small portion of the damage done, and my medical colleagues agree with me that it is a pity that counsel felt constrained to advise against further action of an admonitory nature. If I thought that a modification in the law of libel or an improvement in the ethical standard of journalism might result, I should have felt inclined to proceed despite counsel's opinion.

It is perhaps hoping too much, but possibly a strong body of journalists could lay down ethical rules which would govern press publications, defining those detrimental to the best interests of professions such as the medical and legal, and departure from which would be condemned in no uncertain way. Help from the "closed" professions in framing these rules of press publications would readily be forthcoming. The present intense and bitter distrust among doctors of the power of the press is entirely due to the latter, and it is "up to them" to "put their house in order." Grave, and frequently unjust, resentment between members of the medical profession would thus be avoided, and a better feeling between journalism and the "closed" professions established, much to the advantage of the general public, to whom both professions owe their allegiance. While I naturally deprecate any further publicity, I am prepared to risk that if any good on the lines already indicated should accrue.—I am, etc.,

London, W., Dec. 19th. H. D. GILLIES.

Disciplinary Powers of the G.M.C.

SIR,—Dr. Haydock's letter voices the concern felt by practitioners on the disciplinary powers of the General Medical Council. That there is no appeal from the Council's decisions seems a grave injustice. The question is, how to set the necessary machinery in motion to remedy this. I suggest that the British Medical Association should sound the opinion of the profession through its Branches and bring the matter up for discussion at the next Council meeting. It is quite obvious that no alteration in the procedure of the General Medical Council will occur unless the profession as a whole is strongly in favour of it. We must be more than mildly interested. —I am, etc.,

Plymouth, Dec. 18th. W. ERIC LISHMAN.

Calculus Anuria

SIR,—I have read with great interest the article on calculus anuria by Drs. E. Scott and H. Bloemovitch in your issue of December 10th, and congratulate them on their success.

Of course the value of nephrostomy in calculus anuria is a well-known and established fact which does not really need any further demonstration, since it is considered classic, but the object of my letter is to ask Drs. Scott and Bloemovitch why, before performing nephrostomy, they have not made a double ureter catheterization, or at least attempted it. It would appear to be the obvious thing to do, for ureter catheterization in such cases as the one they describe gives the best results and would have possibly avoided the surgical operation. In any case it could not have delayed the nephrostomy by more than six hours, it not being necessary to keep the ureteric catheters *in situ* for more than that time (of course, with all due care for asepsis)—in their cases the patient was waiting twenty-four hours in hospital before the surgical operation was performed. Even if one ureter was blocked by a calculus which the catheter could not displace or pass, provided the catheter in the other ureter is successfully passed up to the kidney pelvis it is very often found to stimulate the secretion of both kidneys.—I am, etc.,

London, N.14, Dec. 12th. V. J. H. COIDAN.

Fractures of the Spine with Paraplegia

SIR,—For the purposes of collective investigation, and in order to assess the value of the treatment, I would be much obliged if any surgeon who has attempted the manipulative reduction of fractures and fracture-dislocations of the spine with paraplegia would be good enough to let me have brief notes of the cases, whatever the results may have been.—I am, etc.,

Liverpool, Dec. 17th. R. WATSON JONES.

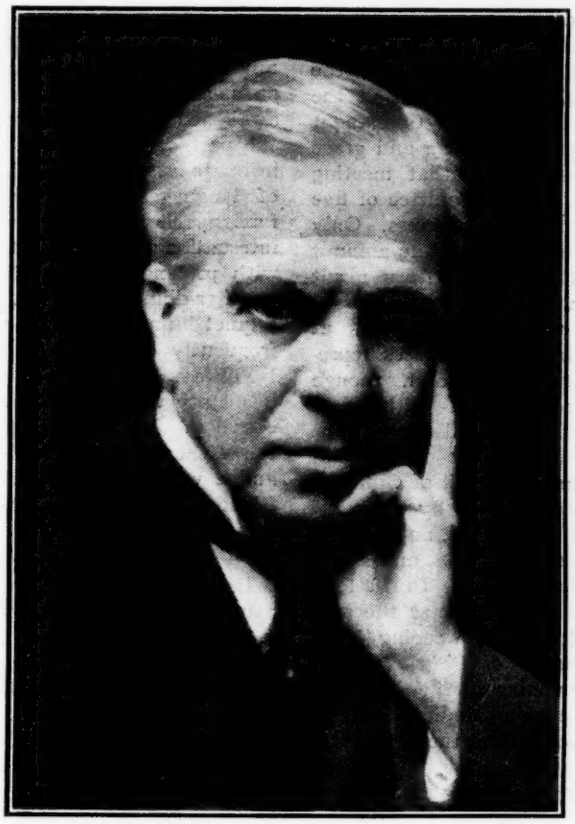
Obituary

E. TREACHER COLLINS, F.R.C.S.

Consulting Surgeon, Royal London Ophthalmic Hospital

The death of Mr. Treacher Collins, which took place on December 14th, has deprived the world of English ophthalmology of one of its principal leaders. Very early in his career he attained an established position, and in recent years he came to be regarded as the doyen of British ophthalmologists. Throughout his life a careful and skilful observer, he did much to establish the very high reputation of British ophthalmology in the scientific world.

Edward Treacher Collins was the son of Dr. W. J. Collins, and on his mother's side came of an old Huguenot stock. His elder brother, Sir William J. Collins, well known as an ophthalmic surgeon, and a former chairman of the London County Council and for some years a Liberal M.P., has served the country well in many public offices. Treacher Collins was educated at University College School, which in those days still occupied premises behind the present University College. He and Ernest Clarke, whose death was recorded only a few weeks ago, were at school together, though Clarke was by some years his senior. His medical education was gained at Middlesex Hospital, from which he qualified in 1883. He very soon turned his attention to ophthalmology, and from 1884 to 1887 he was house-surgeon at Moorfields. It was the work done in the following seven years, as curator and pathologist to the Royal London Ophthalmic Hospital, which laid the foundations of his extensive and accurate knowledge of ophthalmology and established his reputation as a scientific worker. His first paper in the Moorfields Hospital *Reports* appeared in 1887 on anophthalmos, and his contributions to the Ophthalmological Society's *Transactions* began in a modest way in 1888. (He had been elected a member in 1885.) He became a Fellow of the Royal College of Surgeons in 1890.



The results of his ten years' apprenticeship at Moorfields were summarized in the Hunterian Lectures which he gave to the Royal College of Surgeons in 1894, and in these lectures will be found the germ of much work which he subsequently elaborated. The lectures, revised and enlarged, were published in book form in 1896 under the title of *Researches into the Anatomy and Pathology of the Eye*. It was this work which gained for him the Middlemore Prize of the British Medical Association. But probably what Collins valued more than anything else was that it was his period of office as curator that established the repute of Moorfields as a leading school of research and education in the eye world, and many ophthalmologists of note in Great Britain, America, and elsewhere look back with affectionate regard to the work they did under Collins's guidance in the Moorfields laboratory.

In 1894 Mr. George Lawson, surgeon oculist to Queen Victoria, was asked to nominate an ophthalmic surgeon to go to Persia to operate on the Shah's eldest son, and Collins was selected. He married before his departure, and spent his honeymoon in Persia. On his return he wrote an account of his experiences there under the title *In the Kingdom of the Shah*. He was rewarded for his services with the Order of the Lion and the Sun. Among other results of his experiences was a keen interest in and an extensive knowledge of Persian art, especially carpets and faience. On his return in 1895 he was elected to the staff of the Royal London Ophthalmic Hospital as assistant surgeon. From the time of his appointment as house-surgeon till his death, when he was consulting surgeon and a member of the committee of management of the hospital, a period of forty-eight years elapsed. During the five years following his return from Persia, despite the increasing claims of clinical work on his time, he continued his anatomical and pathological researches, and again the work of these five years was partially summarized in the Erasmus Wilson Lectures delivered at the Royal College of Surgeons in February, 1900, on the anatomy and pathology of the eye. About this time the question of the removal of the Royal London Ophthalmic Hospital from its old site in Moorfields to City Road was under consideration, and Collins, as secretary of the medical board, was much occupied with the consequent arrangements.

A short list of his hospital appointments will serve to show the amount of purely clinical work that he did. In addition to his Moorfields surgeoncy, he was ophthalmic surgeon to Charing Cross Hospital and to the Belgrave Hospital for Children, visiting ophthalmic surgeon to the Metropolitan Asylums Board Ophthalmia Schools at Swanley, consulting surgeon to the Westminster Ophthalmic Hospital, and to the Oxford Eye Hospital. He was also lecturer on ophthalmology to Charing Cross Hospital, to the London School of Tropical Medicine, and to the Oxford University Post-Graduate School of Ophthalmology. He was secretary of the Ophthalmological Society from 1898 to 1901, having previously served on the council, and became a vice-president for the first time in 1905. In 1915 he was awarded the Nettleship Medal (given for the most distinguished scientific work in ophthalmology done in the preceding three years), and in 1917 he was elected to the presidency. During his presidency the formation of the Council of British Ophthalmologists was first mooted, and he took a leading part in the founding of this body, which has played such an important part in what may be called the State and public relations of ophthalmic science. He became president in succession to Mr. J. B. Lawford. In 1921 he was asked to give the Bowman Lecture, the highest honour that can be conferred by

British oculists, and, characteristically, he chose a purely scientific subject for his lecture—"Changes in the visual organs correlated with the adoption of arboreal life and the assumption of the erect posture." The lecture illustrates fully the breadth of his scientific knowledge and the amount of painstaking research which he put into all his work.

Collins was the official representative for the British Government at the American Ophthalmological Congress in 1922. Shortly after his return from America, negotiations for the resumption of the international congresses such as had been held at four-year intervals before the war were begun. It was soon found that the difficulties in the way of the resumption of the normal congresses were too great, and, in place of an international congress, a Convention of English-speaking Ophthalmologists was held in London in 1925. For that occasion Collins, for the second time, became president of the Ophthalmological Society, and much of the success of the convention was due to the gracious way in which he conducted the business of the meeting. Few who were present at the banquet in the Guildhall, when the Duke of Connaught was the guest of honour, will forget the charm and grace of the chairman's speech. It was during that meeting that Collins was asked to select a small committee of five to try to arrange for a true international congress. Only the few who formed that committee can know the amount of work that he did to ensure its success. As a result of its work, and of the most valuable co-operation of Professor van der Hoeve, a meeting was held at Scheveningen in 1927, attended by fifty delegates representing twenty-five different nationalities, and, though Collins's small committee looked forward with some trepidation to the meeting, nothing could have gone more smoothly. At the conclusion of the meeting at Scheveningen, when the International Council of Ophthalmologists was formed, Collins was elected by universal acclamation honorary president of the council, and so took his place beside Bowman, von Graefe, Donders, and Fuchs as a leader in international ophthalmology. In 1931 he was awarded the Mackenzie Medal, and took as the subject of his address "The physiology of weeping"; it was published in the *British Journal of Ophthalmology* this year. He was an honorary member of the American Medical Association, of the Copenhagen Medical Society, the Egyptian Ophthalmological Society, and the Hungarian Ophthalmological Society.

It is impossible to enumerate here the contributions of Treacher Collins to the literature of ophthalmology. There are over one hundred original papers of varying size in the *Transactions* of the Ophthalmological Society alone, apart from innumerable contributions to discussions—and very frequently Collins's remarks in a discussion were of much greater value than the paper that gave rise to them. In the Moorfields *Reports* there are over twenty papers of value. Others appeared in the *Transactions* of the Section of Ophthalmology of the Royal Society of Medicine, in the *British Medical Journal*, and in the *Lancet*. Along with Mayou he published the well-known book *The Pathology of the Eye*, which has recently gone into a second edition, and in 1929 he published *The History and Traditions of the Moorfields Eye Hospital*. Even after the illness which was to prove fatal attacked him he was still able to show his keenness for anything which would advance the interests of the subject of his life's work, and he drew up and sent to the present writer notes and a draft of regulations for the formation of an International Federation of Ophthalmological Societies, which will come up for discussion at the forthcoming International Congress at Madrid. And, even when he was obviously failing, he insisted on having the papers and letters brought out and read to him.

Whatever he undertook, whether it was of scientific interest or to further the more general interests of ophthalmology, he did it with his whole heart. His two greatest interests were the Royal London Ophthalmic Hospital and the Ophthalmological Society. For these he worked all his life, and of these he thought as he lay dying. How dear the interests of the Ophthalmological Society were to him was shown by a letter to a junior after the latter had completed a term of office in the society. It was a very gracious thing for an old and honoured president to take the trouble to write and thank a younger officer for the work he had done in the interests of the society, and it threw a strong light on his affection for the society and his keen interest in its prosperity. He was absolutely zealous in his pursuit of any scheme which would help to advance the science and art of ophthalmology. He was without any envious thought, always willing to do anything to help a colleague. His heart harboured no mean thought. It is little wonder that there was awakened a strong feeling of affectionate admiration on the part of all those who were in any way brought into intimate association with him. Though he had no gift of languages he was immensely popular with all his foreign colleagues, and when he rose to speak at a great international meeting at Scheveningen he was received with prolonged acclamation. He had a very pretty wit in after-dinner speaking. There was a graciousness and a quiet humour about the short speeches which he was so frequently called on to make at ophthalmic gatherings. He always seemed to be able to strike the right note, and if a story was introduced it always seemed fitting to the occasion. His death leaves a gap among the workers in the science of ophthalmology which only very few can fill, and a wound in the hearts of many of us who were his friends of which the scar will always remain.

Sir JOHN H. PARSONS, F.R.S., writes:

British ophthalmology has reason to be proud of the names of its votaries who have attained world-wide recognition as pioneers in the science and art of this branch of medicine. The name of Treacher Collins will be unanimously added, by those competent to judge, to the list, which includes such masters as William Mackenzie, Bowman, Nettleship, Critchett, Priestley Smith (still happily with us), and others. Born of a non-conforming stock, he was innately imbued with an acutely critical outlook and indomitable perseverance. At an early stage in his professional career he became associated with Moorfields Eye Hospital, at that time the Mecca of ophthalmologists from all parts of the world, and to that fact must be ascribed his lifelong enthusiasm for ophthalmology and his never-failing love of his Alma Mater. Various as were his tastes and interests—and they were many—they were but the recreations which enabled him to return with renewed vigour to his all-absorbing tasks. In those early days Moorfields was unique, at any rate in English-speaking countries, in emphasizing the importance of pathology as the basis of a scientific knowledge of diseases of the eye, and Collins's appointment to the post of curator of the museum and pathologist to the hospital was the determining factor in his devotion to pathological research, which persisted throughout his life. Research workers may be broadly divided into two classes:—those who work solely for the love of discovery, and those who work always with one eye fixed upon the application of new truths to utilitarian ends. Such a contrast is pre-eminently to be seen in Thomas Young and Donders. Treacher Collins belonged to the latter class.

Many of his early researches were devoted to a minute investigation of the anatomy of those parts of the eye specially concerned in intraocular operations. Others dealt with the anatomical concomitants of various types of secondary glaucoma and their influence upon successful operative treatment. The wealth of pathological material at Moorfields, however, early interested him in more recondite subjects, as, for example, congenital malformations.

Collins was endowed with an exceedingly methodical mind. As each new problem was successively attacked it underwent a long period of gestation. Every available particle of evidence was sought out and brought into correlation with his own original observations. Plausible theories were carefully examined, and the pros and cons submitted to the touchstone of a scientific agnosticism which is only too rare in these days of relativity and indetermination. Ultimately what appeared to Collins to be the most plausible theory was definitely and finally adopted. Usually, but not always, most of his fellow workers agreed with his conclusions. Occasionally fresh evidence arose which seemed to some to refute the favoured hypothesis. But Collins was a valiant fighter, and, when he had once made up his mind, was difficult to move. No one could possibly doubt his enthusiasm and absolute honesty, but when he had solved a problem to his own satisfaction he almost seemed to resent reopening the question. This attitude of mind resulted in clearly crystallized views upon innumerable ophthalmic problems, and, as he was generally right, made him an excellent teacher. Probably no one of recent years has had a more widespread influence on the teaching of the fundamental pathological data of ophthalmology than Treacher Collins, and, from the purely scientific point of view, it is as a pathologist that he will live in the history of British ophthalmology.

Everything, however, which conduced to the recognition and advancement of his subject appealed to him, and stirred him into strenuous and dogged activity. After Moorfields Hospital, the Ophthalmological Society of the United Kingdom claimed most of his affection. He struggled hard and effectually for the retention of its identity when it was threatened with incorporation in the Royal Society of Medicine. But his ophthalmic interests were world-wide, and he was as much *persona grata* in the United States and foreign countries as among his own countrymen. When, after the war, it was impossible to gather the nations together, he insisted upon the next best thing, and was the prime moving spirit of the English-speaking Conference. When better days came he was with one accord selected as the president of the International Congress at Amsterdam. He was equally active in those ethical and semi-political aspects of ophthalmology which are not catered for by the scientific societies, and when the suggestion of the Council of British Ophthalmologists for dealing with these problems was put before him he heartily supported it and became the first president.

As a man he was the soul of honesty and the enemy of humbug, a steadfast friend and no time-server. With a somewhat "dour" exterior, he had a fine sense of humour, and made an ideal travelling companion.

Mr. THEODORE W. LULING, chairman of Moorfields, sends the following tribute:

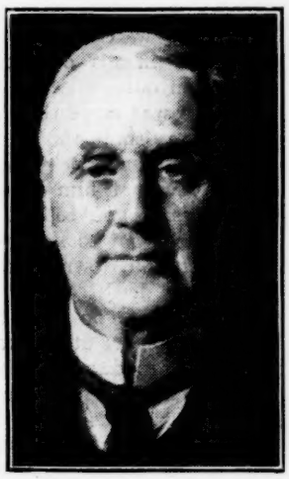
The passing of E. Treacher Collins marks the close of a life dedicated to the service of Moorfields Eye Hospital. Appointed house-surgeon in 1884, within three years he occupied the important post of pathologist. It was at this time that he established his reputation as a great teacher of ophthalmology, and laid the foundation of an international reputation. His succession to the honorary staff followed as a matter of course. An indefatigable worker and teacher, he held the tradition of Moorfields as a heritage to be passed on to all those with whom he came into contact. His great achievements in the field of ophthalmology are without the scope of this writing. Collins retired as a surgeon of Moorfields at the age of 60 in 1922, and thereafter devoted his time to the affairs of the hospital as a member of the committee of management and of numerous subcommittees. His dominating personality played an important part in the rapid development and expansion of the hospital from that time on. His last literary work was entitled *The History and Traditions of the Moorfields Eye Hospital.* Collins once said that he had acquired the "Moorfields habit" at an early age, and had never been able to break himself of it. Treacher Collins had many followers, but few peers.

[The photograph reproduced is by Lizzie Caswall Smith, London.]

SIR CHARLES CLUBBE, K.B.E.

Consulting Surgeon, Royal Prince Albert Hospital, Sydney

We regret to record the death, at the age of 78, of Sir Charles Clubbe, who for more than thirty years had been one of the outstanding personalities in the progress of surgery in Sydney.



Charles Percy Barlee Clubbe was born at Hughenden, Bucks, and, after schooldays at Uppingham, entered as a medical student at St. Bartholomew's Hospital. He obtained the diploma M.R.C.S. in 1876, and the L.R.C.P. in the following year. He served in the Zulu war of 1879 as a civil surgeon, and subsequently decided to make his home in New South Wales, specializing in surgery. He had a long and distinguished association with the Royal Alexandra Hospital for Children, Sydney, being surgeon to that institution for thirty-six years, and president of it since 1904. For twelve years he was surgeon to the Prince Albert Hospital, and later was appointed consulting surgeon. He was lecturer on clinical surgery in the University of Sydney for twelve years. In 1924 he was elected a Fellow of the American College of Surgeons, and was created K.B.E. in 1927.

In 1905 he contributed to the *British Medical Journal* a discussion of one hundred laparotomies for intussusception in children. He was also the author of a book on the diagnosis and treatment of this condition, the second edition of which appeared in 1921. His interest in surgery was general, and he was an honoured member of the staffs of other hospitals in Sydney.

[The photograph reproduced is by E. A. Bradford, Sydney.]

SIR JAMES CRAWFORD MAXWELL, K.C.M.G., K.B.E., M.D.

Late Governor of Northern Rhodesia

Sir James Maxwell, who died last month at the age of 63, while on a sea voyage to Australia, was a native of Dundee, and received his medical education at Edinburgh University. He graduated M.B., C.M. in 1893, and proceeded M.D. three years later. He was house-surgeon to Halifax Infirmary from 1895 to 1897. He then went out to Sierra Leone, where he was district medical officer from 1897 to 1900, being awarded the West Africa medal and clasp (1898–9) for his assistance in establishing the

protectorate. He then exchanged into the political service, and served first as a district commissioner in Sierra Leone ; from 1914 to 1920 he was First-Class Resident in Nigeria. During the next two years he was Colonial Secretary in Sierra Leone, and was then promoted to a similar position in respect of the Gold Coast, of which he was later Acting Governor from time to time.

In 1927 Maxwell was appointed Governor and Commander-in-Chief of Northern Rhodesia, and took an active part in the great mineral development in the northern part of the territory. The proposed change of the capital of Northern Rhodesia from Livingstone to the more central position of Lusaka obtained his strong support. For his outstanding services he received the C.M.G. in 1911, and was created K.B.E. in 1925 and K.C.M.G. in 1930. He retired only last August.

THE LATE PROFESSOR THAYER

Sir William Hale-White writes:

W. S. Thayer, who had behind him a fine intellectual ancestry, was one of those fortunates who would be sure to adorn the calling of his choice. We should be grateful that he chose that of medicine. It cannot have surprised those who watched him to see him at the head of the profession in his own country and with a world-wide reputation outside it.

But he was more than a doctor ; he was a personality. A man may smile and be a villain, but his smile may show the wealth of goodness there is in him ; such was Thayer's. When you met him it spread over his face to welcome you, causing you to feel that here was a man who was on the look-out to see what was best in you, who would never let you down, and who was incapable of a mean thought or deed.

Then, when you came to know him, you found that his consideration for others was embarrassing, because it made it difficult to discover what he himself desired ; but this mattered little, for he was happiest when doing that which suited his friends best. This selflessness was one of his chief charms ; another was his restfulness and quietude. You might differ from him, but the most quarrelsome and irritable could not possibly get out of temper with him. In a discussion he stated his case firmly, fairly, tentatively, and calmly ; he listened to your reply with a gentleness that made you think you might be talking to St. Francis ; he would then either handsomely acknowledge that he was wrong or he sought to persuade you, never to obtain a victory over you.

Such natures as his always inspire devotion. Friends, acquaintances, students, nurses, patients, and servants were all devoted to Thayer ; they rejoiced in serving him ; children adored him. *The Bulletin of the Johns Hopkins Hospital* tells us that on May 18th, 1927, " there gathered at dinner, in the Mayflower Hotel in Washington, D.C., a large and representative group of colleagues and friends of Dr. William S. Thayer to present to the Johns Hopkins Medical School a lectureship in his honour as a testimonial of esteem and affection." Rarely has a man been so beloved as to inspire such good will in his lifetime. The esteem in which he was held was owing, among other things, to his strength of character: he was far from being infirm of purpose. He had high ideals from which no amount of sophistry could deflect him. For example, he was among the minority of his countrymen who thought the United States should have come into the war earlier than it did. He not only wrote eloquently in support of this minority view, but he acted up to his conviction by throwing up his occupation at home and, early in the war, going to Russia with the American Red Cross. Another cause of the esteem felt for him was his thoroughness. Slipshod work of any kind was hateful to him ; a piece of work he undertook was always done as thoroughly as lay in his power ; he enjoyed doing everything—say the examination of a patient or the writing of an essay—as perfectly as he could. This was well exemplified by the care with which he revised all that he wrote. The pleasure derived from doing a thing well far exceeded that of payment for it.

Thayer was endowed with gifts that always lead to happiness. One was a sense of humour, which used to make his eyes twinkle with delight. Another was his cheerfulness. His company was never dull ; you felt happy in merely talking to him. But of the gifts given to him that which contributed most to his own peace and felicity was his sense of beauty. Beautiful people, beautiful thoughts, beauty in nature, beauty in art, beauty in literature were all a joy to him. He loved to be in the country, and he belonged to that group of country lovers who are anglers. Travelling and meeting new people were genuine pleasures ; he was at home with foreigners, for he was an excellent linguist. Medical societies in London, Paris, Vienna, Germany, Budapest, and Moscow honoured themselves by making him a member, and he was an officer of the Legion of Honour.

Hearing Thayer talk or reading what he wrote showed that literature meant a great deal to him ; he would treat a book reverently and affectionately ; he had a refined taste for poetry and prose. He wrote good prose but better poetry ; had he not been so busy he would have written enough to be recognized among our modern poets. Some of his verses are delightful, and he shows his skill by turning Russian poetry into good English poetry.

I have not mentioned his professional work, as Dr. McNee is dealing with that. Thayer, a distinguished teacher and physician, with such a character as I have tried to indicate, has been of incalculable value for the good of medicine, and for its recognition among the public as a high-minded and learned profession.

Sir Humphry Rolleston writes:

The sudden death, on December 10th, of William Sydney Thayer of the Johns Hopkins University and Hospital from coronary occlusion—one of the many subjects on which he had written—is a source of deep regret to his numerous friends in this country. Though he was not the immediate successor of Osler as physician-in-chief of the Johns Hopkins Hospital, those here who knew him regarded him as the leading clinician in America and as wearing the mantle which Osler had laid aside on becoming Regius Professor of Medicine at Oxford in 1904. Though the son of a professor of law at Harvard and educated in Boston, he always seemed to me, during a friendship of more than forty years, to be more like a Virginian than a Bostonian. As an intern in 1890 and then in other offices up to 1905 at the Johns Hopkins Hospital he was much influenced by Osler, and certainly came to resemble his chief in broad-minded and progressive independence. His work on malaria (1897) was due to Osler's example, and in a number of addresses and papers (one so recently as this year) he paid affectionate tributes to his " dearest and wisest master," as he described him in *Osler and Other Papers* (1931). With a charming personality he had a kindly humour, attracted troops of friends, was a keen sportsman, a fisherman, and a traveller with great sympathies with the French. As a writer his style, both in prose and in poetry, was exceptional. His strong feelings about America's delay in entering the war were finely expressed in *America—1917 and Other Verse* (1926), which also contains some moving references, such as that in " The Light that was," to his wife, who died when he was in Russia during the war. When the call to help the Allies came his wife, then in the late stages of cardiac disease, urged him to go, both of them fully realizing

that this meant their last good-bye. Like Osler after his son's death, Thayer was thus left a changed but courageous soul.

Thayer was honoured in his own country as well as in others. He was president of the American Society of Tropical Medicine in 1911, of the exclusive Association of American Physicians in 1921, and of the gigantic American Medical Association in 1928. In 1918 he was elected one of the foreign associates of the Académie de Médecine of Paris, and in 1925, with Professeur A. Chauffard, who died on November 1st, one of the first and only three foreign honorary members of the Association of Physicians of Great Britain and Ireland. In July, 1927, he gave the address, "Richard Bright: the man and the physician," at the Guy's centenary celebration of the publication of the first volume of the *Reports of Medical Cases*. He was in constant request to give addresses on medical subjects; to this he generously responded, and wrote many *in memoriam* appreciations. His critical sense of the use of words extended to their spelling, and he often protested against the American abbreviations. As a man and a medical leader he set a high standard without compromise, and surely would have been satisfied with the epitaph—that he carried on the Osler tradition.

Dr. J. W. McNEE writes:

I have been privileged to see Sir William Hale-White's appreciation of Professor Thayer's life. No one here is better qualified to write it, since Sir William was, I think, Thayer's oldest personal friend in this country. Sir William's last paragraph suggests that I might add a brief tribute to Thayer as a physician, and I am very glad to do so.

I first met Professor Thayer during a long visit to Johns Hopkins Hospital in 1924–5, but our friendship ripened quickly and grew during his periodic visits to London. In 1925 Thayer was no longer on the ordinary teaching staff of Johns Hopkins, but he was often there to see private patients, at the weekly pathological conference, at the staff round, and occasionally to give a clinical lecture to undergraduates. He was then at the height of his mature experience as a general physician, while interesting himself particularly in his favourite study of cardio-vascular diseases, particularly angina pectoris and infective endocarditis. In his teaching he may fairly be described as a physician of the old cultured general school, carrying on nobly the tradition begun at Johns Hopkins by his medical hero, chief, and friend, William Osler. For younger physicians it may place Thayer best in time if I say that he was the first in the United States to stain and demonstrate the malaria parasite, soon after its discovery. This must have been about 1891, soon after he had come to Baltimore from Harvard, and he was always pleased to tell of the excitement of that time. Thayer had a well-stored and well-balanced clinical mind, his observation was acute, and his speech and descriptive powers admirable. Various small personal oddities, such as the frequent taking off, and repeated and obviously (to him) surprising total loss of his spectacles, amused the students, but only added to his attractiveness as a teacher. His was not, it is right to say, an original mind in the sense that he made new discoveries in medicine. His very nature made this unlikely—he was always willing to give up time to everybody, young or old, quick or dull, and that is one of the reasons which made him universally loved. His private consulting practice was never enormous, but his patients, who remained his personal friends, seemed always to include the people outstanding and distinguished in public life and in the arts and sciences of his country.

No account of Thayer's life and work would be complete without a reference to his wife, whose death when he was far away in Russia was his greatest grief of all. Thayer was a son of the North, born a year before the end of the Civil war, and all his own stock had fought for the North. His wife, Susan Chisolm Read, sprang from a distinguished Southern family of Charlestown, South Carolina, whose sympathies were entirely Southern and Confederate. This union of North and South was well known to Thayer's friends to be ideal, and was the greatest influence and inspiration of his life. One of the things he eagerly discussed on his last visit to England was a project of placing the names of those who died for the South alongside the names of the Northern young men who made the same sacrifice, on the walls of his old university at Harvard. It is impossible to think of Thayer as a physician except in relation to Thayer as the man. He was a great servant of his country in the world of medicine.

THE LATE DR. CAREY COOMBS

Dr. IVOR J. DAVIES (Cardiff) writes: Carey Coombs's premature death is a grievous loss to British medicine. He was the best-known physician in the provinces, and his researches in rheumatic heart disease received world-wide recognition. Coombs was cast in the Osler mould, and was the embodiment of the best type of physician. He had a fine presence, liberal culture, true nobility of character, and was endowed with a most equable and lovable disposition. He was the most consistent of friends, and a particularly cheerful companion. His genial company will be sadly missed at the meetings of the Association of Physicians. He had a deep religious belief: in an eloquent tribute to his memory at the funeral service the minister of his church said, "His profession was his natural means of service for the Kingdom of God." We were closely associated in the preparation of the *Medical Annual*, and its success was largely due to his able direction. The single aim in this work was his desire to help the general practitioner. He was suddenly stricken whilst walking in the street with Dr. R. H. Parry, the medical officer of health for the City of Bristol. He was removed to his ward at the General Hospital, and made a remarkable recovery from what was evidently a severe coronary accident, whose immediate effects were almost fatal. Such was his irrepressible good humour that he joked about his enforced detention, and said that he felt like the small boy whose nether garment had been hidden. Yet no one knew better than Coombs the potentialities of the affection. Mercifully both attacks were painless, the second being instantly fatal. Of him it may be truly said: *Verus, integer, apertus, nil habuit ficti; nil simulati.* He was so true, straight, and open. There was nothing of dissimulation or pretence about him. His memory will be ever fragrant to his friends, and his life's work an incentive and inspiration to many. Perhaps the thought of him which now comes first is: "In quietness and confidence shall be your strength."

We regret to announce the death recently of Dr. LOUIS A. BYRNE, coroner for Dublin city, at his residence, Flower Grove, Rochestown Avenue, Dun Laoghaire, county Dublin, at the age of 75. Born in Dublin, Dr. Byrne began his career as a clerk, first in Power's distillery, and later in the accountant's office of the corporation. While so employed he studied medicine, and qualified in 1886, taking the F.R.C.S.I. in 1889. In April, 1900, he was appointed city coroner, at a salary of £500 per annum, with £50 for clerical assistance. With the extension of the city boundaries this was increased to £600, and eventually to £1,103, with £78 for clerical assistance. During his thirty-two years in office he held thousands of inquests, always displaying sympathy and consideration for persons bereaved and for the jurors, witnesses, and general public, and his death is deeply regretted among all classes in the city. He was a member of the council of the Royal College of Surgeons in Ireland, and for forty years he was surgeon to Jervis Street Hospital. He leaves a widow and three daughters, one of whom is the wife of Dr. Oswald Murphy, who frequently acted as deputy coroner.

The Services

No. 14 STATIONARY HOSPITAL

The thirteenth annual dinner of the medical officers of No. 14 Stationary Hospital, Wimereux, was held at the Trocadero Restaurant, London, on December 9th, with Colonel C. R. Evans in the chair. There was a good attendance. Proposing the toast of "The Hospital," Colonel Evans commented on the strength of the comradeship which, founded abroad in the war years, had persisted undiminished. He related one or two reminiscences, and was followed by Colonel Warrack. The greater part of the evening was taken up with an interesting discussion of the hospital's activities at various stages of its existence. Colonel H. L. Tidy presented apologies on behalf of those unable to attend, and added that, but for the absence of two who had been kept away by illness, the dinner would have attracted the best and most representative attendance hitherto. It was agreed to hold the next annual dinner at about the same time next year.

Universities and Colleges

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

Middlesex Hospital Medical School: Mr. Raymond E. Apperly (anaesthetics).

London School of Medicine for Women: Mr. J. Douglas McLaggan (oto-rhino-laryngology).

The regulations in the Faculty of Medicine for the first examination for medical degrees for internal students have been amended by the substitution for paragraph 2 (iv) under the heading "Exemptions" (Red Book, 1932–3, p. 200) of the following:

(iv) Students who have passed the intermediate examination in Arts, Science, or Agriculture, with Chemistry, or Physics, or Botany and Zoology, will be exempted at the First Examination for medical degrees from examination in the subjects in which they have passed.

The regulations for the M.B., B.S. examination for internal and external students have been amended as follows:

(i) By the substitution of the words "September 28th" for the words "September 24th" in the third line, and the substitution of the words "October 5th" for the words "October 1st" in the fifth line, on page 219 of the Red Book, 1932–3.

(ii) By the substitution of the words "5 October" for the words "1 October" in the fourth line of the section headed "Date of Examination" on page 264 of the Blue Book, September, 1932.

The regulations for the Diploma in Public Health have been amended by the substitution for the eighth paragraph (Red Book, 1932–3, p. 502), and the first paragraph under the heading "Examination fees" (Blue Book, September, 1932, p. 314), of the following:

"The fee is ten guineas for each entry to the whole examination, and five guineas for each entry to either part of the examination. Candidates who enter for both Part I and Part II on the same occasion but, owing to failure in Part I, are precluded from sitting for Part II, will receive back the fee of five guineas less one guinea. All cheques should be made payable to the University of London, or Bearer, and crossed "Westminster Bank, Ltd., Brompton Square, S.W.3, University of London Account."

The Principal, Dr. Edwin Deller, has been appointed chairman of the Brown Animal Sanatory Institution Committee. Sir E. Graham-Little, Professor H. R. Kenwood, and Sir Holburt Waring have been appointed members of the Court of Governors of the London School of Hygiene and Tropical Medicine.

Thirteen medical entrance scholarships and exhibitions, of an aggregate total value of £1,708, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of University College Hospital, King's College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered. The examination for medical scholarships will commence on Monday, May 15th, 1933. Full particulars and entry forms may be obtained from the secretary of the London Intercollegiate Scholarships Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E.5.

The Mercers' Company and the Fishmongers' Company have made grants in the shape of annual payments extending over a series of years, amounting in each case to £10,000. These gifts will be applied towards the cost of the new ceremonial hall to be erected on the University site in Bloomsbury. As already announced, the City Corporation has promised £10,000. It is hoped to raise the balance of the cost within the City of London in order that the hall may be regarded as the City's gift to the University and be a reminder for all time of the sympathetic and general interest which the leading men and institutions in the City have taken in the University's welfare and development.

Applications are invited for the Readership in Physiology, tenable at Guy's Hospital Medical School; salary £800 a year. Candidates having a definite interest in the clinical side of physiology are preferred. Further particulars may be obtained from the Academic Registrar, University of London, to whom applications must be sent not later than the first post on February 17th, 1933.

The degree of D.Sc. in human anatomy has been conferred upon Professor J. E. S. Frazer, F.R.C.S., and Mr. C. P. G. Wakeley, F.R.C.S.

The William Julius Mickle Fellowship has been awarded to G. F. Marrian, D.Sc., and the Laura de Saliceto Studentship to Alexander Haddow, M.B., Ch.B.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*‖C. G. Barnes, *†‡‖J. D. H. Bird (University Medal), *‖J. R. Blackburne, *‖E. A. Devenish, *†A. E. Francis, *†K. C. Priddy, *‡C. H. Rogerson, H. Allan, R. E. Angel, Julia C. H. Avery, M. Baillie, Helen Baker, E. T. Bannister, F. R. Bettley, K. Biden-Steele, H. Blumovitch, W. H. Bradbeer, S. Burke, Barbara G. C. Clarke, Joyce M. G. Clogg, H. N. Collier, D. F. L. Croft, Janet M. Done, K. V. Earle, H. G. Edwards, D. Erskine, E. S. Evans, T. B. Field, Kitty Fraser, D. H. Fulton, R. G. Gilbert, G. Gilchrist, A. M. Gill, A. C. Gladstone, J. B. Great Rex, D. C. Harris, E. S. Harverson, W. P. Hedgcock, L. A. Hiscock, M. S. Holzman, M. D. C. Hosford, Elizabeth M. Hutton, Ursula Y. im Thurn, D. W. James, K. L. James, K. C. Jeffery, Agnes V. Kelynack, Victoria H. King, L. E. D. Knights, C. B. Lanyon, L. W. Lauste, G. A. M. Lintott, J. S. MacVine, S. F. Marshall, Hermia M. Mills, H. S. Morton, R. B. Munro, T. H. Parkman, R. E. J. Pembrey, Leah Reder, R. G. Reid, L. O. Roberts, J. Sakula, Margaret Skelton, R. N. C. Smith, R. G. W. Southern, Charlotte M. H. G. Sparrow, T. Standring, R. Sykes, G. H. Taylor, Hetty C. Tester, V. C. Thompson, J. B. L. Tombleson, Greta Traub, R. L. Waterfield, A. J. Whitaker, A. J. White, H. R. I. Wolfe, J. L. Woodhouse, S. W. Wright, J. Zeitlin. *Group I:* G. T. Allen, W. M. Capper, Kitty K. Cohen, L. Dexter, G. H. Gibbens, Phyllis N. Greene, A. Hollingsworth, J. Howkins, T. G. Hudson, Katherine M. Jones, W. S. G. Lawson, T. S. Nicol, H. Ramsay, M. H. P. Sayers, V. C. Snell. *Group II:* W. N. W. Barns, R. H. Berry, Mary L. Birkett, B. F. M. Bond, W. H. Cartwright, C. P. Collins, M. G. H. Cooray, D. R. Crabb, L. F. Day, T. A. Gavin, Mary E. Gould, Freda M. B. Harmer, Helen A. Hatrick, R. A. Q. Lay, R. G. Macfarlane, H. A. Magnus, G. W. May, R. Parkinson, H. Silverstein, A. M. Stewart-Wallace, F. Summers, H. M. Williams, R. F. Winckworth.

* Honours. † Distinguished in Medicine. ‡ Distinguished in Forensic Medicine and Hygiene. ‖ Distinguished in Surgery.

UNIVERSITY OF BIRMINGHAM

The following degrees were conferred at a congregation on December 16th:

M.B., CH.B.—Phyllis E. Dain, Muriel K. Garnick, D. M. I. Harmar, Hyacinth I. Lightbourne, Lois M. Marris, W. L. Price, C. Ramsdale, C. U. Wickham.

UNIVERSITY OF BRISTOL

Mr. C. A. Joll's dissertation on diseases of the thyroid gland has been approved by the board of examiners for the degree of M.D.

The following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—*Part I:* Grace J. V. Ball, Dorothy E. Barber, A. G. W. Branch, *Rosalind M. S. Derham, N. H. Greenberg, G. L. L. Gurney, T. R. V. Gurney, Irene G. Hamilton, †J. N. Heales, A. J. Matheson, R. A. Mathews, *†A. C. Molden, *†‡C. H. G. Price, Marion L. Tryon. *Part II:* R. N. O'D. Burns, J. D. Hughes, J. J. Kempton, J. Ridgway, C. N. Royal, J. P. P. Stock. *Group II, completing examination:* A. C. Price.

* Distinction in Materia Medica, Pharmacy, Pharmacology, and Therapeutics.
† Distinction in Forensic Medicine and Toxicology.
‡ Distinction in Pathology.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—D. H. Collins, Honora J. Twomey.

FINAL M.B., CH.B.—*(1924 Regulations) Part A:* A. J. L. Bolger, A. Gleave, E. L. Jones, Joan M. Matthews, D. Simpson, W. G. Timmis, O. Walker, H. W. E. Jones (Forensic Medicine and Toxicology), T. H. Pierce (Pharmacology and General Therapeutics, Public Health). *Part B:* J. Amos, F. C. Anglor, G. R. Critien, J. F. Foulkes, A. J. Helfet, C. Y. Howarth, T. G. Richards, Kathleen E. Slaney, K. W. Stroude, E. Taylor, R. H. Thewlis,

J. L. Williams. (*1929 Regulations*) *Part I:* Jannett C. Evans, A. O. Karstaedt (with distinction in Pharmacology and General Therapeutics), Kathleen M. Kavanagh, S. Shulman, R. E. Wilson. *Part II:* C. H. H. Bryson. (*1923 Regulations*) *Part III:* H. Graf, R. G. Walker.

DIPLOMA IN TROPICAL MEDICINE.—F. Bando, R. Bowesman, C. T. Chan, H. S. Haji, L. C. Ling, Greta Lowe, B. S. R. Nirodi (recommended for the Milne Medal), S. E. Onwu, C. R. C. Rainsford, Margaret P. Roseveare, R. B. S. Smith, T. C. Y. Sun, J. S. Tomb, F. D. Zau.

VICTORIA UNIVERSITY OF MANCHESTER

Dr. H. L. Sheehan, assistant lecturer, has been appointed lecturer in pathology, and Dr. Raymond Whitehead, demonstrator in pathology, has been appointed assistant lecturer.

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—A. S. Beer, M. M. Cohen, Patience Craig, C. H. Gattie, W. Hall, J. D. Lendrum, Marion W. Perry, Brendan Sheehan, C. Starkie, Muriel N. Strange, S. Sutton. *Part I* (*Forensic Medicine and Hygiene and Preventive Medicine*): S. A. Cohen, H. Fleming, G. H. Moore, R. Nightingale, J. Schofield, J. L. D. Williams.

THIRD M.B., CH.B.—(*Pathology and Bacteriology*) H. Baker, A. S. Bullough, W. P. Cargill, N. Copeland, J. D. H. Cran, J. Curry, Annie M. Dawson, E. G. Dryburgh, I. H. Flack, N. Goldstone, C. Hancock, A. Harris, H. Harris, H. Hempling, B. P. Hill, J. A. Hobson, Eileen M. Hughes, F. Janus, R. H. Jobson, S. H. O. Jones, N. F. Kirkman, *D. H. Mackay, A. E. Martin, Amy B. de V. Mather, *E. L. Patterson, Winifred Porter, R. Spencer, W. K. Spencer, Marjorie Swain, C. Tetlow, A. McN. Tomlinson, J. A. A. L. Woodhead. (*Pharmacology*) *J. Charnley, Eleanor B. Clarke, Mary A. C. Cowell, A. J. F. Crossley, T. F. Davey, W. Fielding, F. I. Firth, E. Greenhalgh, A. Hargreaves, E. H. Heilpern, K. H. Higson, A. D. Hoffman, L. L. Husdan, J. I. A. Jamieson, G. R. Jureidini, H. A. Koretz, A. F. Mackay, R. Mallinson, J. Meynell, G. Moorhouse, J. L. Morgan, Annie Nelstrop, R. L. Parish, C. S. Parker, J. N. Parker, L. Margaret Ross, C. Royle, H. L. Settle, J. N. Shepherd, D. Shute, B. Thornley, R. Thornley, *H. J. Wade, G. W. Ward, J. R. Wardley, *Margaret I. Williams.

* With distinction.

UNIVERSITY OF EDINBURGH

Sir Edward Sharpey-Schafer has announced his intention to retire at the end of the current academical year from the Chair of Physiology, which he has held since 1899.

A graduation ceremonial was held in the Upper Library Hall on December 16th, when the following degrees and diplomas were conferred:

M.D.—*J. W. A. Hunter, R. D. M'Allister, J. G. S. M'Queen, S. T. Mook-Sang, W. R. Playfair, I. M. Robertson.

LITT.D.—W. G. A. Robertson, M.D.

D.Sc. (*Department of Pure Science*).—T. Ferguson, M.D.

PH.D. (*Faculty of Medicine*).—Jean D. Robertson.

M.B., CH.B.—E. O. Bell, I. Buchanan, R. L. Cormie, J. F. Curr, J. J. de Villiers, T. A. Don, J. E. Dunlop, G. Fair, A. R. W. Gabriel, D. H. Gill, J. Graham, W. A. S. Grant, M. F. Grieve, E. C. Harbottle, J. P. Heron, M. I. Higab, M. N. Hoyte, J. Hutton, A. C. MacEwen, R. M. Mackay, I. F. MacKenzie, N. A. M. Mackinnon, J. Meyer, I. R. Milne, K. M. Mistry, A. R. Newcombe, R. B. Phillips, M. Port, N. Prasad, Hon-Hang Tai, G. S. Thoms, E. J. Thomson, F. M'C. Thomson, K. C. P. Thomson, D. van der Merwe, Elspeth M. Warwick.

DIPLOMA IN PSYCHIATRY.—R. F. Barbour.

The Wellcome medals and prizes in the history of medicine have been awarded as follows: Gold medal, J. N. Davidson; silver medal, W. M'I. Wilson.

* Commended for thesis.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examination indicated:

FINAL MEDICAL EXAMINATION.—*Part II, Medicine:* Ray G. Barron, J. N. Concannon, P. H. Stone, S. N. Varian, A. B. Warren-Darley, Elizabeth G. Graham, D. T. Annesley, A. L. Pennefather, W. T. Bermingham, P. G. Daly, C. C. Langford, J. A. Mallie, H. S. Perrot. *Surgery:* J. S. M. Pringle, J. N. Concannon, A. Pollitt, A. L. Pennefather, P. W. O'Ryan, C. H. M'Mahon, H. St. G. Smith, C. J. Hassett, Dorothy R. R. Solomons, J. W. Craig, F. King, C. J. Mullen, W. J. Craig, D. H. S. Boyd. *Midwifery:* *D. M. Mitchell, *J. Bell, *E. C. Rowlette, *Marjorie R. E. Boyd, *D. M. Ahern, *M. J. Horgan, H. R. Davies, T. J. M. Gregg, H. D. Clarke, Emily M. Booth, W. P. Griffin, A. Dolphin, C. W. N. Smiley, W. A. Clarke, W. H. E. M'Kee, P. B. Hafner, Marion A. G. Kennedy, M. J. Roberts, G. N. Taylor, E. Howitt, H. T. Ryan, Mary J. Ahern, Esther C. L. Howe, E. S. A. Ashe, W. N. Whiteside, J. K. Lavery, P. A. O'Callaghan, G. S. S. Harty, Eileen M. Kennedy, H. S. Barber, N. Jackson, C. C. Langford, S. H. R. Price, J. S. Ruddell, S. G. O'Neill.

D.P.H.—*Part I:* Frances E. O'Connor.

* Passed on high marks.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on December 8th, when the President, Sir Holburt Waring, was in the chair.

Diplomas and Licences

Diplomas of Fellowship were granted to the following forty-six candidates:

H. G. Pinker, H. McW. Daniel, A. E. P. Parker, Dorothy J. Collier, K. Fletcher-Barrett, R. A. Wiener, E. Carew-Shaw, E. C. N. Strong, S. W. Allinson, A. W. Cubitt, D. M. Stern, Keren I. Parkes, M. Silverstone, W. Forrester Wood, G. J. Hollis, A. J. Moffett, N. W. Roberts, J. G. Bowen, D. O. Clark, S. Scher, J. H. Conyers, A. L. d'Abreu, F. W. Willway, R. M. Alderton, J. O. Harrison, A. R. C. Higham, G. C. Knight, T. W. Mimpriss, C. K. Vartan, D. Trevor, D. R. Bharucha, R. P. Dalal, C. S. Patel, J. Bishop Harman, F. P. Morgan, J. Bastow, W. C. Gissane, P. Jones, C. A. Keogh, A. F. Lasrado, J. S. MacMahon, D. R. Mitchell, R. A. Money, L. N. Ross, C. B. Singh, S. L. Wilson.

Diplomas of Membership were granted to B. T. W. Harvey, H. J. M. Robinson, and H. G. Ungley.

Licences in Dental Surgery were granted to sixty-six candidates.

Appointments

Sir Holburt Waring was appointed a member of the Court of Governors of the University of Birmingham for three years from January 1st, 1933.

Mr. Victor Bonney was re-elected a member of the Central Council for District Nursing in London for three years from January 1st, 1933.

Lectures

The following were elected to deliver the lectures which Sir Arthur Keith will be unable to give:—Hunterian Professors: Mr. Harold Burrows, one lecture on the production of malignant tumours in animals by means of pure chemical substances; Mr. Arthur Edmunds, one lecture on unsuccessful appendicectomy; Mr. George Mason, one lecture on the surgical significance of the vitelline duct; Mr. Lawrence O'Shaughnessy, one lecture on thoracic surgery; Mr. W. E. M. Wardill, one lecture on further experiences in the treatment of cleft palate; Mr. E. R. Flint. Arnott Demonstrators: Mr. E. K. Martin and Mr. Wilfred Shaw.

An offer from Lord Riddell to present the College with a loving cup for the annual dinner of Fellows and Members was accepted with grateful thanks.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Rent Restriction and Control

In the House of Commons, on December 12th, Sir HILTON YOUNG moved the second reading of the Rent and Mortgage Interest Restrictions (Amendment) Bill, which, he said, was the first of two measures proposed by the Government to give effect to necessary adjustments in housing. The fact that rents of decontrolled houses had jumped up had had bad social results. The tenant of a controlled house was immobilized. There was no way for the slum-dweller to go and live in a better house, and hence there was no filtering up of people from the slums. The Bill proposed that wage-earners' houses in Class C should no longer be decontrolled at the present rate, or at all. One of the reasons which, in future, would entitle a landlord to get possession of his house would be overcrowding. That would be a most effective way of fighting that evil and of doing justice to the landlord. Mr. LEVY asked if the medical officer of health for the district was to judge what was overcrowding. Sir HILTON YOUNG replied that that would be the duty of the county court judge.

In the discussion Mr. LLEWELLYN-JONES expressed surprise that a Conservative Minister of Health was going to throw people occupying houses rated in London at over £45, and in the country at over £35, to the wolves. These persons included professional men—doctors, dentists, solicitors, architects, and others; about 70 per cent. of the professional men of this country were in this class.

Sir G. COLLINS announced that before the House rose for Christmas he intended to bring in a Bill providing for the erection of houses for low-wage earners in Scotland.

Sir F. FREMANTLE, having referred to his experience on the two departmental committees which dealt with this subject in 1922 and 1930, said that the pressure on Class C houses continued, and he did not see any end to it. The number of people in Class C had been increased largely by the impoverishment of the workers. An increase was always going on also, because those people who were most careless

and thriftless had a higher birth rate. This Bill suggested the end of control in 1938. They should make sure, therefore, that they did everything possible in their housing measures, and otherwise, to secure a proper system of housing on newer lines in 1938. He hoped this Bill would really be the end of the rent restriction measures.

The Bill was read a second time on December 13th.

Radium

In reply to Mr. Storey on December 14th, Mr. SHAKESPEARE (Parliamentary Secretary, Ministry of Health) said that legislation would be required to control the preparation, advertisement, and sale of remedies containing, or purporting to contain, radium or radio-active substances. Time would not be available at the moment for this purpose. He had seen a report of a speech on the subject by the chairman of the National Radium Commission, and noted that one danger seemed to be that persons who sucked radio-active paint might become phosphorescent at night. Mr. STOREY retorted that the results were much more serious, and that a number of people had lost their lives.

Replying to Mr. Caporn, on December 15th, Sir HILTON YOUNG said that the Radium Commission was not appointed by him, but was constituted by Royal Charter. He would bring to the notice of the Commission, however, the allegation that it had refused to supply any radium to the Nottingham Radium Institute for use in connexion with the General and other hospitals in Nottingham.

Housing Bill

Sir HILTON YOUNG, on December 15th, moved the second reading of the Housing (Financial Provisions) Bill, which applies to England and Wales. The Minister said not less than 2,000,000 houses had been provided since the war. In 1931 there were 244 houses per 1,000 of the population, compared with 209 per 1,000 in 1911. This increase was partly offset by the decrease in the size of families. Between 1911 and 1931 houses in Classes A and B—those for the well-to-do, the lower middle class, and the better-paid artisans—had increased by 60 per cent., but houses in Class C, for the lower-paid workers, by only 13 per cent. The problem of the slums had hardly been scratched. Owing to the fall in money and building costs the gap between the economic rent of a house and the rent after payment of subsidy was no more than 5d. a week. It would not be in accordance with common sense to keep the expensive machinery of the subsidy now that gap was so nearly closed. The demand for the larger houses was almost satisfied, and private enterprise would now turn its attention to the smaller houses. The building societies were now prepared to finance the building of houses to let, and the Government was prepared to enter into a guarantee, which was set out in the Bill. The Government had agreed to no stipulations for the reduction of national standards of housing; to maintain these would be the business of the local authorities. He looked upon the cessation of the subsidy as the occasion for renewed efforts to rid the country of slums, such as the dwellings dug into the banks of the Tyne, the back-to-back rows in industrial districts of the West Riding, and the basement dwellings of East London. He did not ask the House to reduce the subsidy on slum clearance; when the local authorities had concentrated in a fresh effort against the slums the amount of the subsidy could be reviewed. Since the Act of 1930, 15,400 slum houses had been cleared and 5,600 replacement houses completed. The practicable maximum was to clear 12,000 houses a year; he could not undertake to reach that at once. He proposed no amendment or changes in the Act of 1930, but further financial provision to enable that Act to be carried out. The Chancellor of the Exchequer would provide £75,000 for that in the Estimates. They would concentrate on the Act of 1924, which provided for the reconditioning of rural labourers' cottages. No measures would be taken for continuing the special housing subsidy under the Act of 1931.

Mr. ARTHUR GREENWOOD moved the rejection of the Bill. Sir AUSTEN CHAMBERLAIN advised the reconditioning of urban houses rather than the building of blocks of flats, while Sir PERCY HARRIS said reconditioning would be of little use in London. Block buildings were inevitable in a big city, and were not the barracks they used to be twenty or thirty years ago. The problem of the small house, passable and sanitary, which was occupied by two, three, or four families, was not touched by the Act of 1930. Miss RATHBONE urged that in future a subsidy should be attached to the tenant, and not to the house. Mr. MAXTON said a Housing Bill was promised for Scotland at an early date.

Sir FRANCIS FREMANTLE said he felt anxiety in regard to the future of the policy now being adopted of removing subsidies; but £16,000,000 a year was already borne by the nation as a charge on the provision of half the houses built since the war. As an old medical officer of health, he agreed that it was dangerous to remove control, but the local authority would still have its duty towards every house erected, the sanitary officers would still have their duties to perform, and the building by-laws and regulations would always hold good. The houses which were to be built should be kept for the C class of people, and people who required to be housed should be housed regardless of whether they were good or bad tenants. The Bill must be worked with the Town and Country Planning Act. When the subsidy was withdrawn not only the employers in the building industry, but also the employees could make a contribution to a reduction of the expenses. Wages in the building industry were high by comparison with other trades. Mr. HICKS asked Sir F. Fremantle if there had been any alteration in the scales of pay of doctors. Doctors' practices might be the same as in 1914, but labour in the building trades had been casualized.

The Bill was read a second time by 238 to 42.

Typhoid in Yorkshire.—Sir HILTON YOUNG told Mr. Groves, on December 15th, that the number of deaths in the outbreak of typhoid at Malton, Yorkshire, was twenty-two. The precise number of patients inoculated was not yet known. Neither the doctor who died, nor any other patient, was inoculated before contracting the disease.

Death Following Vaccination in Liverpool.—Sir HILTON YOUNG told Mr. Groves, on December 15th, that directly his attention was drawn to the case he asked for the clinical history and notes of the post-mortem examination of a six-months-old child who died recently at Liverpool thirteen days after vaccination by a public vaccinator. These documents supported the finding of the inquest, and showed that the cause of death was generalized tuberculosis, including tuberculous encephalitis, which should be differentiated from post-vaccinal encephalitis. Sir Hilton added that he saw no ground for further inquiry.

Deaths from Colliery Explosions.—On December 13th Mr. E. BROWN, replying to Mr. Tinker, said the number of explosions of fire damp in collieries this year, causing loss of life, was twelve. Four of them occurred on the night shift, three on the morning shift, three on the afternoon shift, one between shifts, and the remaining one during repair work in a pit which was idle. The number of deaths was 68. In 1927 there were 11 explosions, with 72 deaths; in 1928, 15 explosions, with 36 deaths; in 1929, 13 explosions, with 34 deaths; in 1930, 18 explosions, with 70 deaths; and in 1931, 12 explosions, with 107 deaths.

Regional Water Supply Committees.—In reply to Mr. Chorlton, on December 15th, Sir HILTON YOUNG said a subcommittee of the advisory committee on water supplies had been considering the establishment of regional water committees. He had arranged that its meetings should be resumed. Constant efforts were made to promote the formation of such regional committees.

Experiments on Animals.—Sir JOHN GILMOUR told Mr. Groves on December 15th that every place registered for vivisection under the Act was inspected last year except one, for which no licence was available during 1931. The last certificates for experiments on animals at the Royal Dental Hospital, London, were allowed to come into operation in October, 1931, and were still in force. It would be contrary to practice to give information on the nature of the experiments performed by the person holding these certificates.

Notes in Brief

Sir Hilton Young told Mr. Rhys Davies, on December 15th, that he was not aware of any general review of pensions under the Blind Persons Act.

Medical News

A course of lectures on the *British Pharmacopoeia, 1932*, will be given in the lecture theatre of the Pharmaceutical Society of Great Britain, 17, Bloomsbury Square, at 8.30 p.m., on Thursdays, from January 5th to March 16th. Admission by ticket (10s. for the course); members of the society free of charge.

The twenty-third annual exhibition of scientific instruments and apparatus, arranged by the Physical Society, will be held on January 3rd, 4th, and 5th, 1933, at the Imperial College of Science and Technology, Imperial Institute Road, South Kensington, S.W. It will be open from 3 to 6 p.m., and again in the evenings from 7 to 10. There will be a trade section, and the research and experimental section will contain contributions from most of the important research laboratories in Great Britain. A special subsection will be devoted to experiments of educational interest, and discourses will be delivered each day at 8 p.m. Tickets may be obtained from the Exhibition Secretary, 1, Lowther Gardens, Exhibition Road, S.W.7. Admission on January 5th will be free, without ticket.

In response to requests for information on the present practice in the diagnosis and treatment of poliomyelitis, the Ministry of Health has issued a revised and up-to-date memorandum on the subject. This (Memo. 166, Med.) is obtainable from H.M. Stationery Office, price 2d. net.

Dr. John Alexander Watt, Littleover, Derby, vice-president of the Derbyshire Branch of the British Medical Association, has been appointed a magistrate for the county of Derby.

Professor von Romberg of Munich informs us that the Dr. Sophie A. Nordhoff-Jung cancer prize for the best work in the field of cancer research in recent years has been awarded to Professor Max Askanazy of the University of Geneva in recognition of his experimental research work and his critical presentation of larger and general problems in the same field. The commission of award was composed of Professors Borst, Doederlein, von Romberg, and Sauerbruch.

The Chemist and Druggist and Pharmacist of Australasia, in its issues of September 9th and October 10th, devotes some space to an account of the proceedings of the British Medical Association Centenary Meeting. The President's speech is given in précis, together with short extracts from the Section meetings. There is also a report of the Centenary Dinner and Exhibition.

The issue of the Czech medical journal *Casopis Lékarů Ceskych* for November 15th is a special number in honour of the sixtieth birthday of Professor Joseph Pelnár of Prague. It consists for the most part of original articles by colleagues and former pupils, together with an excellent portrait of Professor Pelnár, a list of his scientific works since 1923, and those of workers in his medical clinic, and a number of letters of congratulation from personal friends. This commemorative number is edited by Professor B. K. Prusík and Dr. J. Charvát, who contribute an introductory note.

A dinner in support of the special appeal for £50,000 for the Marie Curie Hospital was held at the Dorchester Hotel on December 14th, under the presidency of Lady Maureen Stanley. The hospital contains thirty beds, but more accommodation is urgently needed. It was opened in 1929 for the radiological treatment of women suffering from cancer and allied diseases, and carries on a clinic started in 1925 by the Cancer Research Committee of the London Association of the Medical Women's Federation. The appeal is for the provision of an *x*-ray department and a new wing to provide additional wards, and the necessary accommodation for nurses and for maintenance. Mr. Neville Chamberlain, the Chancellor of the Exchequer, was prevented by his parliamentary duties from attending. The appeal was supported by Sir Walter Fletcher, who spoke of the humanitarian aims and achievements of the hospital.

The late Sir Alfred Fripp, by his will, left a sum of money to found an annual lectureship on happiness and success. The second lecture will be given by Lord Baden-Powell on Tuesday, January 24th, at 5.30 p.m., at University College, Gower Street, W.C. Admittance free by ticket. There will be a few numbered and reserved seats, price 2s. 6d.; proceeds to be devoted to the Hackney Branch of the Invalid Children's Aid Association. All applications should be sent to the secretary, 19, Portland Place, W.1, accompanied by a stamped addressed envelope.

It was announced at the meeting of the Metropolitan Hospital Sunday Fund at the Mansion House on December 15th that the collections for the current year amounted to £73,641, the lowest since 1916. The sum of £69,015 has been awarded to 159 hospitals, 13 institutions, 35 dispensaries, 38 nursing associations, and for the cost of surgical appliances.

According to the annual report of the French Society for the Propagation of Cremation, 1,245 cremations were carried out in France last year in the six French crematoriums (Paris, Lyons, Marseilles, Rheims, Rouen, and Strasbourg).

The Department of Scientific and Industrial Research has just issued the Food Investigation Special Report No. 41 (H.M. Stationery Office, 7s. 6d. net), which incorporates the results and recommendations following a four-months' survey of the freezing, storage, and transport of New Zealand lamb from that country to this. Attention has been chiefly directed to the preservation of "bloom"—the freshly killed appearance of the meat—and to the avoidance of loss of weight. To the former end the wrapping of carcasses in odourless materials of low permeability, and further study of ante-mortem changes, are recommended.

Professor Wilhelm Schüffner, director of the Institute for Tropical Diseases, Amsterdam, has been awarded the Hans Aronson Foundation Prize.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are MUSEUM 9861, 9862, 9863, and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Fissure of the Lips

"J. H. B." writes: A sufferer myself, I have found the following treatment the most effective. Before going to bed draw the edges of the fissure together by contracting the orbicularis, and secure them by means of a piece of 1/2 in. zinc strapping plaster, cut hour-glass shape, the waist bridging the fissure and the large ends adhering to the skin on either side, avoiding the mucous membrane. Healing will often have taken place by morning, but the longer the strapping can be retained and the earlier it is applied the better the results. It gives immediate comfort.

Duodenal Ulcer at 80

"L. H." asks for the most suitable diet and treatment for incipient duodenal ulcer in an elderly man of 80, who is otherwise hale and hearty; height 5 ft. 10 in., weight 14 st. There has been no haemorrhage, but persistent pain two or three hours after food.

Income Tax

Redecoration of Surgery

"F. A. W." consulted the local income tax officials about two months ago as to the expense of panelling and redecorating his surgery and waiting room. He was advised to have the work done and "send in a claim for the full rebate of 5s. in the £ on the total cost." He has done so, and is now informed (by another official) that he must make the claim as against the 1933-4 tax.

*** As professional profits are assessed on the basis of the previous year's income, any expenses affect the liability of the following, and not of the current, year, and therefore the recent expense cannot affect the tax due in January, 1933. Incidentally our correspondent refers to the work done as "improving" his surgery, etc. To the extent to which the expenditure represented improvement rather than maintaining the standard of decoration it would rank as capital expenditure, and would not be allowable for income tax purposes.

Replacement of Car and Depreciation

"G. F. G." was allowed £459 for replacement of a car in 1926. He is considering whether to claim the depreciation allowance for the current financial year, but is told that he can claim the allowance only on the present written-down value of the car—that is, on £184. What had he better do?

*** We advise him to claim the depreciation allowance on the £184, but when that car is replaced to be sure to make an "obsolescence" claim. In effect that will give him the renewal deduction less the amounts actually allowed him in respect of depreciation, and he will therefore get the immediate advantage of one allowance and the ultimate benefit of the other.

New Consulting Practice—Territorial Service

"McC." explains that up to July, 1932, his income consisted of salaries, etc., as university lecturer, hospital tutor, and private tutor. He has now rented a consulting room, but so far the expenses exceed any income from the consulting practice. Also he has been assessed for Territorial pay (£15 less £8 expenses) for 1932-3, though no pay was received.

*** If the practice is carried on at a loss "McC." can claim an allowance for the amount of the loss, the claim to be lodged within twelve months of the end of the year of assessment. We advise him to make up a nine months' account for the practice as at March 31st, and to lodge his claim then. As regards the Territorial pay, all that our correspondent can do is to claim the cancellation of the assessment; no deduction can be claimed for the expense of maintaining the uniform if no income is received in that connexion.

Cost of Travelling

"J. C. N." is a research worker, and holds three separate appointments, and has to travel from one place to another. Can he claim to deduct the cost of travelling?

*** No. The point has been decided by judicial authority in the cases of Cook *v.* Knott and Ricketts *v.* Colquhoun. It would be different if the emoluments were derived from a single appointment necessitating travel to different places, but here each appointment is separate, and the expense is incurred as a preliminary to, and not in the course of, carrying out the duties of each particular appointment.

Interest on Borrowed Capital

"Tolong Lah" inquires what amount of relief a practitioner can claim (*a*) in respect of money borrowed for the purchase of a practice, and (*b*) for interest paid thereon.

*** As regards (*a*) the transaction is one involving capital rather than income, and does not affect income tax liabilities. (*b*) No allowance can be claimed for payment of interest on loan because the borrower is entitled to deduct income tax at the standard rate of tax from such payments when he makes them to the lender.

LETTERS, NOTES, ETC.

"Choreic Dorsal Reflex"

Dr. G. Arbour Stephens (Swansea) writes: In the *British Medical Journal* of February 21st, 1931, I described the presence of what I call the "choreic dorsal reflex," which is to be found in all children suffering from chorea. Although acute rheumatic fever is closely associated with chorea both as to cause and to after-effects, it is rare to find this reflex in the former unless other choreic symptoms are also present. The close association of this reflex with chorea is emphasized by the fact that in one-sided cases of chorea the dorsal reflex is found only on the side affected by the choreic movements. This fact is brought home by the case of a girl, aged 18, who was admitted for left-sided chorea. She came from a very poor home, where she received hardly any of the lime-bearing foods (eggs, milk, and cheese), but was supplied with acids in the form of vinegar. She was small in build and in poor condition. There was a slight mitral murmur, and the "basic blood pressure" was raised to 70 mm. Hg, whilst the systolic pressure was lowered to 120 mm. Hg, from which the inference is that the weakened pump had to work against an increased pressure owing to the presence of some toxins in the blood. The dorsal reflex extended from the third dorsal spine to the lower part of the buttock on the left side; there was no reflex on the right side. She was treated by rest in bed and 1-grain doses daily of parathyroid (desiccated) as put up in tablet form by Armours. After a month's treatment she suddenly developed an urticarial rash on the face and neck, whilst the choreic movements ceased with equal suddenness. The rash gradually cleared away, and all that remained of the chorea was the left-sided dorsal reflex.

Inquiry into Abortion

Mrs. Janet Chance writes, on behalf of the Federation of Progressive Societies and Individuals: We understand, with very great regret, that the Council of the British Medical Association has decided not to appoint, at present, a committee to inquire into the question of abortion, and we sincerely hope that the matter has only been postponed for a short time. For when a question of this kind is of profound concern to a very large section of the community, and is beginning to draw public attention, it is surely of the most serious importance that those with knowledge and judgement on health questions should give the community their guidance. And it cannot be of little account to the doctor whether, and in what ways, his judgements are to be dictated by law; nor can it be satisfactory to the profession which prides itself on its impartial treatment of rich and poor to know that it is not practising this impartiality in the region of gynaecology.

Population Problems

Dr. B. Dunlop (London, S.W.7) writes: Referring (p. 1067) to Dr. Frederick Hoffman's estimate that the world's primitive population increases annually by 11,000,000, you describe it as "alarming." I hope that you are not overlooking the yearly 9,000,000 increase of the remainder. Again, you say that the encouragement of modern health methods among primitive races inevitably tends to a reduction in the death rate. But if their death rate be 30 per 1,000, these peoples must be suffering from pressure of population on the means of subsistence, and therefore can only reduce their mortality by accelerating the increase of their food supply or by reducing their very high birth rate. Science cannot help a population to multiply faster than its food supply.

Diaries

We have received from the Anglo-French Drug Company, Ltd. (11 and 12, Guilford Street, W.C.1), a copy of their desk diary for 1933. A limited number of copies are available, free of charge, for medical practitioners who care to make application for them.

The Dental Manufacturing Company, Ltd. (Brock House, Great Portland Street, W.1), publish a sumptuous diary of appointments which, though primarily intended for dentists, would also prove useful to medical practitioners whose work is done mainly in the consulting room at regular time intervals. The prices are 6s. 6d., 7s. 6d., and 8s. (postage 6d. extra).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *308*.

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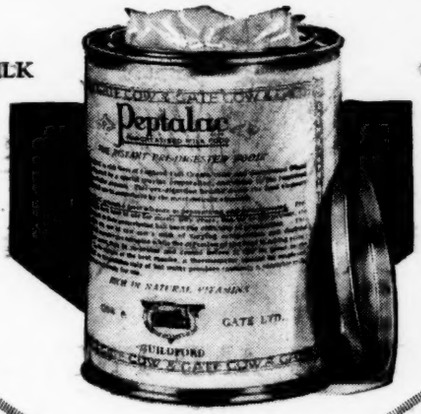

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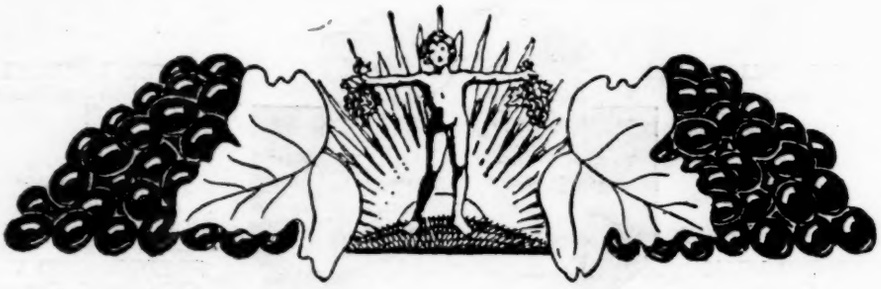

CORRECTING AND PREVENTING CONSTIPATION DURING PREGNANCY

A distinguished obstetric surgeon has laid it down that "constipation plays a leading part among the so-called minor ailments of pregnancy." The same authority advises that "simple methods which are physiological and harmless" should be adopted in order to secure two or three easy movements a day, these methods being persisted in until a regular habit is established.

It is desirable that the first of these evacuations should take place before breakfast; and this may easily be brought about by taking, first thing in the morning, a spoonful of ENO'S "Fruit Salt" in half a pint of water, following this by a cup of tea. If necessary, further doses may be taken before the subsequent meals.

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